

Bid Document



GUJARAT INFORMATICS LIMITED
Block No. 2, 2nd Floor,
C & D Wing, Karmayogi Bhavan
Sector - 10 A, Gandhinagar – 382010.
Phone No: 23256022, Fax No: 23238925

Bid for Rate Contract for Purchase of IP CCTV & Display solutions Including Supply, Installation and Commissioning & maintenance of Equipment on Turnkey basis on behalf of Various Government Departments/Boards/Corporations/Offices within the State of Gujarat (Tender No. HWT18092024)

Pre-bid Meeting: 27.09.2024 at 1500 hours

Venue for pre-bid meeting : Gujarat Informatics Ltd, Block No. 2, 2nd Floor, C & D Wing, Karmayogi Bhavan, Sector - 10 A, Gandhinagar.

Last Date of Submission of Bid: 10.10.2024 till 1500 hours

Last Date of Submission of Bid Processing Fees & EMD: 10.10.2024 till 1500 hours

Date of Opening of Bid: 10.10.2024 on 1700 hours

Bid Processing Fee: Rs. 17,700

Introduction

Government of Gujarat is in the process of establishing IP CCTV Video Surveillance Infrastructure for various Government offices located at State, District and Taluka Locations levels, in the entire state of Gujarat.

GIL on behalf of Department of Science and Technology, Govt. of Gujarat, invites bid for Rate Contract to supply, installation and commissioning of IP CCTV Video Surveillance i.e. IP Camera, Network Video Recorder, LAN Cabling including their associated accessories such as patch cords, termination box, OFC accessories, switches, transceivers, racks, manageable switches and Audio Video Equipment's etc. The works are to be completed on turnkey basis and to be maintained as per terms and conditions of the contract.

Services offered should be strictly as per the requirements mentioned in this Bid document. Conditional bids are liable for rejections.

Once quoted, the bidders are not allowed for any type of price changes, whether resulting or arising out of any technical/commercial clarifications sought regarding the bid. Such price changes shall render the bid liable for rejection.

Quoted prices of goods and services will be valid for 2 (Two) Years from the date of award of the contract.

GIL will select bidder for IP CCTV Video Surveillance on Turnkey basis and Supply, Installation and Commissioning of required Equipment for Government Offices in the State of Gujarat.

The LOCATION OF WORKS will be across the Gujarat state & Delhi (Gujarat Bhavan and Gujarat Sadan).

Gujarat Informatics Limited (hereinafter referred to as “GIL”), for Various Government Departments / Boards / Corporations / Offices for their requirement of IP CCTV & Board room solutions Including Supply, Installation and Commissioning & maintenance of the Equipment on Turnkey basis intend to invite offers through E-tendering route across the state of Gujarat. (Tender No. HWT18092024).

Eligibility Criteria for the bidder:

1. The bidder should be IT System Integrator, who must have supplied and successfully supplied/ installed items similar to the type specified in the schedule of requirements to any of the reputed organizations / institutes in the country. **(Form no. E-1).**
2. The Bidder and its OEM should have demonstrable experience and expertise in supply, installation, commissioning of at least a single project in India having minimum 1000 IP CCTV Cameras OR Two projects having minimum 750 IP CCTV Cameras during the last 5 years as on bid submission. Copies of Purchase Order(s) / Contract Agreement and Certificates of Successful Completion from Customer should be submitted. **(Form no. E-2)**
3. The Bidder should provide Authorization certificate from the OEM of IP Camera & Network Video Recorder, Network Switches, Network Rack, Cabling Products and Audio Video range of products for the authenticity, authorized representation and after sales support during FAT. **(Form no. E-3).**
4. The bidder should have local presence and should have office in Gujarat. The bidder should have service support infrastructure in the state to provide warranty and post warranty services. The details for such service support infrastructure must be enclosed. Please attach the copy of any one of the following: Property tax bill/Electricity Bill/Telephone Bill/GST Registration/Lease agreement etc. **(Form no. E-4). In case bidder does not have office in Gujarat, bidder should give undertaking to open office in Gujarat within 45 Working days from the date of award of work order.**
5. Copies of original documents defining the constitution on legal status, place of registration and principle place of business of the company or firm etc. Copy of company incorporation / registration certificate of the firm shall be attached as a proof. **(Form no. E-5).**
6. The bidder must have total turnover of Rs. 15 Crore from during the last three financial years as on 31st March 2023. Bidder should attach CA Certificate/Audit Report for the same. **(Form no. E-6).**
7. The Manufacturer of the product (OEM) of items like IP Camera & Network Video Recorder, Network Switches, Network Rack, Cabling Products and Audio Video range of products must have minimum presence of 7 years in India as on bid issuance date. **(Form no. E-7).**
8. The OEM of CCTV products should submit the undertaking on Rs. 300 stamp paper for: The CCTV Cameras should comply with the Requirements for security prescribed by MeitY to ensure the security of the CCTV systems at the time of supply. The security testing report for CCTV issued by Standardization Testing and Quality Certification (STQC) Laboratory or CERT-IN empanel lab or any other agency notified by MeitY / Government approved from time to time need to be submitted.

(Reference- Meity Notification dated 06/03/2024). No need to submit this undertaking in case of OEM of the CCTV cameras comply with this clause. **(Form no. E-8).**

Note: All the details and the supportive documents for the above-mentioned items should be submitted. Please note that all the eligibility criteria's, turnover, experience will be considered as per the RFP document. Also, Performance Bank Guarantee is applicable of 5% as mentioned in RFP Document.

Note: Bidders who wish to participate in this bid will have to register on <https://tender.nprocure.com>. Further bidders who wish to participate in online bids will have to procure Digital Certificate as per Information Technology Act 2000 using which they can sign their electronic bids. Bidders can procure the same from (n) code solutions – a division of GNFC Ltd., or any other agency licensed by Controller of Certifying Authority, Govt. of India. Bidders who already have a valid Digital Certificate need not procure a new Digital Certificate.

The terms and conditions are as follows:

1. The last date of submission of bid on the website <https://tender.nprocure.com> is 1500 Hrs. **10.10.2024. No physical bids will be accepted.** However, GIL reserves the right to ask the bidders to submit documents, required during evaluation process in physical form also.
2. The bid is non-transferable.
3. **Bidder has to compulsory quote all the items mentioned in the section quoted by them.**
4. **The Bidder may quote only one make & model (i.e. only one product can be quoted) against each line item.** Bidders are required to mention make & Model of the product (Do not write “OEM” against items as bidders are expected to give make & model of the product).
5. Bidder may be allowed to change the quoted Make & Model during Rate Contract Validity. In case the product is “End of Life / Unavailability of the stock” the bidder may change Make and model from any of the already qualified OEMs quoted in the bid. New OEM can be allowed only after permission. Higher Make & Model is acceptable after submission of relevant document and compliance as requested in the bid.”.

If bidder does not fulfill the above condition and during the contract period, if the OEM stops manufacturing the quoted model and bidder will offer to supply new model instead of quoted make & model. of item. Also, whenever such a change is proposed by the bidder, prior permission of GIL to do so will be required.

Once quoted, the bidders are not allowed for any type of price changes, whether resulting or arising out of any technical/commercial clarifications sought regarding the bid. Such price changes shall render the bid liable for rejection.

6. The bidder will have to supply, install, maintain and provide **operational training of supplied hardware, Operating Software** and peripherals and carry out necessary integration at offices located all across Gujarat State.
7. The Bidder shall bear all the costs associated with the preparation and submission of its bid, and GIL will in no case will be responsible or liable for these costs, regardless of conduct or outcome of bidding process.
8. The bidder has to upload the compliance letter on its letterhead duly signed by the authorized signature & other supporting documents as asked for in the bid in scanned format. Failing to submit the same or non-compliance/deviation from any bid terms and conditions, eligibility criteria or technical specifications may result in rejection of the bid.
9. The Bidder has to examine all instructions, forms, terms, conditions and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder’s risk and may result in rejection of its bid.
10. Amendment of Bidding Documents (Corrigendum)

- 10.1 At any time prior to the deadline for submission of bids, GIL for any reason, whether its own initiative or in response to the clarification request by a prospective bidder, may modify the bid by way of amendment and publishing it on website.
- 10.2 The corrigendum will be published on website <https://tender.nprocure.com> & www.gil.gujarat.gov.in.
- 10.3 GIL, at its discretion, may extend the deadline for the submission of bids.

11. Bid Currency – Prices shall be quoted in Indian Rupees only.

The Bidder will have to remit **Non refundable Bid Processing Fees of Rs. 17,700/- & (Refundable) Earnest Money Deposit (E.M.D.) of Rs. 20,00,000/-** on or before **10.10.2024** up to 1500 hours in a sealed cover at GIL office with the heading **“Bid Processing fees & EMD for the E-tender no. HWT18092024, Rate Contract for purchase of IP CCTV & Display solutions Including Supply, Installation and Commissioning & maintenance of Equipment on Turnkey basis on behalf of Various Government Departments/Boards/Corporations/Offices within the State of Gujarat.**

- o Bid processing fees must be in the form of Demand Draft in the name of “Gujarat Informatics Ltd.” payable at Gandhinagar along with the covering letter.
- o EMD as mentioned above, shall be submitted in the form of Demand Draft OR in the form of an unconditional Bank Guarantee (which should be valid up to validity of Bid + 90 days) of All Nationalized Bank including the public sector bank or banks (operating in India having branch at Ahmedabad/ Gandhinagar) as per the G.R. no. FD/MSM/e-file/4/2023/0057/DMO dated 21.04.2023 issued by Finance Department or further instruction issued by Finance department time to time in the name of “Gujarat Informatics Ltd.” payable at Gandhinagar (as per prescribed format given at as per prescribed format given at **Annexure A**) and must be submitted along with the covering letter.

Please affix the stamp of your company on the overleaf of in case of demand draft.

Note: Failing to submit physical covers of EMD and bid processing fees at GIL on or before **10.10.2024** up to 1500 hours may lead to the rejection of the bid.

- 12. In case of non-receipt of Bid Processing fees & EMD as mentioned above within prescribed time the bid will be rejected by GIL as non-responsive.
- 13. Unsuccessful/Disqualified bidder’s E.M.D. will be returned as promptly as possible but not later than 15 days after the expiration of the period of bid validity OR upon the successful Bidder signing the Contract, and furnishing the Performance Bank Guarantee @ 5% of the total order value as prescribed by GIL, whichever is earlier.
- 14. In exceptional circumstances, GIL may solicit the Bidder’s consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. A Bidder may refuse the request without forfeiting its E.M.D. A Bidder granting the request will not be permitted to modify its bid.

- 15. The Successful bidder has to submit copy of each purchase order, acceptance of purchase order & copy of PBG, offer of the material for inspection at GIL office.**
16. The Successful bidder has to submit Performance Bank Guarantee @ 5% of total order value within 15 days from the date of issue of Purchase order (for warranty period + extra 3 months) from All Nationalized Bank including the public sector bank or banks (operating in India having branch at Ahmedabad/ Gandhinagar) as per the G.R. no. FD/MSM/e-file/4/2023/0057/DMO dated 21.04.2023 issued by Finance Department or further instruction issued by Finance department time to time. (The draft of Performance Bank Guarantee is attached herewith).
17. Successful bidders will have to sign the contract upon receiving the Purchase order with the purchaser(s) within 15 working days from the date of Purchase order. (The draft of the Contract form is attached herewith)
- 18. The successful Bidder's E.M.D. will be returned upon the Bidder signing the Contract and furnishing the Performance Bank Guarantee @ 5% of the total order value, offer of inspection of the ordered material, submission of warranty certificates as asked in the bid and after completion of bid validity whichever is later.**
19. The E.M.D. may be forfeited:
 - (a) if a Bidder withdraws its bid during the period of bid validity
 - (b) In case of a successful Bidder, if the Bidder fails:
 - (i) If the bidder is found to be involved in fraudulent practices.
 - (ii) If the bidder fails to submit the copy of purchase order & acceptance thereof.
 - (iii) "If the successful bidder fails to submit the Performance Bank Guarantee & sign the Contract Form within prescribed time limit, the EMD of the successful bidder will be forfeited. GIL also reserves the right to blacklist such bidder from participating in future tenders if sufficient cause exists
20. Termination for Default
 - 20.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Bidder (after providing notice/cure period of 30 days), terminate the Contract in whole or part
 - a) if the bidder fails to deliver any or all of the Goods within the time limit as mentioned in the bid, or within any extension thereof granted by the Purchaser or
 - b) if the Bidder fails to perform any obligation(s) under the Contract/Purchase order.
 - c) If the Bidder, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this clause:

"Corrupt practice" means the offering, giving, receiving or soliciting of any thing of value of influence the action of a public official in the procurement process or in contract execution.

"fraudulent practice : a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the purchaser, and includes collusive practice among Bidders (prior to or after bid submission) designed to

establish bid prices at artificial non-competitive levels and to deprive the purchaser of the benefits of free and open competition;”

- 20.2 In the event the Purchaser terminates the Contract in whole or in part, pursuant to Clause 21.1 above, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Goods or Services similar to those undelivered, and the Bidder shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Bidder shall continue the performance of the Contract to the extent not terminated.
21. Price shall be inclusive of all freight, forwarding, transit insurance and installation charges.
22. Prices shall be in Indian Rupees. The prices shall strictly be submitted in the given format. The tax (GST) components as applicable shall be mentioned separately in the respective columns.
23. Late Bids – The bidder will not be able to submit the bid after final submission date and time.
24. Modification and Withdrawal of Bids
- 24.1 No bids will be allowed to be modified subsequent to the final submission of bids.
- 24.2 No bid will allowed to be withdrawn in the interval between the deadline for submission of bids and the expiry of the bid validity. Withdrawal of a bid during this interval will result in the forfeiture of bidder's E.M.D.
25. Bids will be opened with the buyer's private digital key in the presence of Bidder's representatives, who choose to attend. The Bidder's representatives who are present shall sign a register/attendance sheet evidencing their attendance. The representative will be held responsible for all commitments made on behalf of the bidder and that will be considered valid for all further dealings related to this tender process. In the absence of the bidder(s), the tender committee may choose to open the bids as per the prescribed schedule.
26. The Bidder's names, Bid modifications or withdrawals, discounts and the presence or absence of relevant E.M.D. and such other details as GIL/GOG officer(s) at their discretion, may consider appropriate, will be announced at the opening.
27. **Evaluation of the bids:** After the closing time of submission, GIL/GOG committee will verify the submission of Bid Processing Fees & EMD as per bid terms and conditions. The eligibility criteria evaluation will be carried out of the responsive bids. The technical bids of the bidders who are complying with all the eligibility criteria will be opened and evaluated next of technical evaluation. The financial bid of the technically qualified bidders will be opened. Successful bidder (i.e. L1) will be decided based on the lowest sum total of rates of all line items without tax as mentioned in the financial bid section.
28. **Inspection of Goods:** The bidder will have to offer inspection in the manner as decided by GIL before delivering to the respective sites or at customer sites. The arrangement of inspection of goods has to be done by supplier. Any deviation found in the specification of the produced goods or delivered goods after inspection from the tender specifications will lead to the cancellation of the order, forfeiture of EMD/PBG and prohibition in the participation in the future purchase of Government of Gujarat. GIL/GoG will not be responsible for any time delay which may arise due

to any deviation from the bid technical specification found at the time of inspection and the bidder has to deliver and install the ordered goods within prescribed time limit.

29. Delivery & installation: as mentioned in this document.

30. In case of successful bidder is found in breach of any condition(s) of bid or supply order/work order, at any stage during the course of supply / installation or warranty period, the legal action as per rules/laws, shall be initiated against the successful bidder and EMD/PBG shall be forfeited, besides debarring and blacklisting the bidder concerned for the time period as decided by Govt., for further dealings with GoG.

31. This rate contract will be valid for a period of **2 Years**. GIL/GoG/Department may consider extending the contract on completion of **2 years for further duration of 1 + 1 year** based on the **performance & consent** & in consultation with the successful Bidder.

32. Bidder must ensure that the warranty support & service should be available up to delivery locations to provide repairing cum replacement services of faulty equipment's within 48 hrs. Bidder is required to provide the name & address & contact details of the firm for providing warranty support & repairing cum replacement service up to delivery locations.

33. Penalty Clause as mentioned in this document.

34. **Warranty** : All the products should be with **5 years of warranty** with Time for Replacement of Defective Product during Warranty Period is 72 hours in case of the HO / District level and 150 hours in the case of remote location at Taluka level.

34.1 The Bidder/System Integrator will be required to co-ordinate with software vendor and/or do liaisoning with other service provider to achieve the end-to-end connectivity.

35. **Payment:** Payment for Goods and Services shall be made by the Indenting Department in Indian Rupees as follows:

S/N	Activity	Payment (%)
1	Capex Cost as per financial bid	
	Successful Delivery and Inspection of Hardware/Equipment at the central location/ Bidder's Warehouse at Gandhinagar /Ahmedabad	70% of the Sum total of financial bid (without O&M cost)
	Successful Installation, commissioning & Acceptance test with warranty support	30% of the Sum total of financial bid (without O&M cost)
2	Opex Cost as per financial bid	
	Operational & Maintenance support during the contract period of 5 years	20 equal Quarterly Installments after the end of each quarter.

Note - Material Delivery inspection and Installation testing commissioning & final inspection will be done by GIL. Bidder should offer Material Inspection at Single Location (Ahmedabad / Gandhinagar) at bidder Warehouse.

36. GIL's Right to accept any Bid and to reject any or all Bids – GIL reserve the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to awarding the Contracts, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for such decision.
37. Bidder may take a note that "as this is a Rate Contract bid wherein successful bidder will be finalized for the execution of work as per the scope of work and bid terms & conditions. However, it does not guarantee any order/ quantity. Orders will be released separately based on the actual requirement during the contract duration at the discovered prices". The quantity is only indicative & for reference purpose.
38. **Limitation of Vendor's Liability:** Selected agency's liability shall be capped 5% of contract value plus other measures if defaults and QoS failures continue.
39. **FALL CLAUSE:**

The prices charged for the material supplied under the Bid by the bidder shall in no event exceed the lowest price at which the bidder sells the material or offer to sell material of identical description to any person(s)/organization(s) including the Purchaser or any Department of the Central Government or any Department of a State Government or any statutory undertaking of the Central or a State Government, as the case may be, during the period till performance of all Supply Orders placed during the currency of Bid is completed.

If at any time during the said period, the Bidder reduces the Sale price, sells or offers to sell such material to any person(s)/organization(s) including the Purchaser or any Statutory undertaking of the Central or a State Government, as the case may be, at a price lower than the price chargeable under this Contract, he shall forthwith notify such reduction or Sale or offer of Sale to GIL and the price payable under the Contract for the material supplied after the date of coming into force of such reduction or sale or offer of sale stand correspondingly reduced. The above stipulation will, however, not apply to:

- ✓ Export/deemed Export by the bidder
- ✓ Sale of Goods as Original Equipment prices lower than the price charged for normal replacement.
- ✓ Sale of goods at lower price on or after the date of completion of delivery of ordered goods, under the existing or previous Bids as also under any previous contracts entered into with the Central or the State Government Departments including new undertakings (excluding joint sector companies and or private parties) and bodies

40. Force Majeure Shall mean and be limited to the following:

- a) War / hostilities
- b) Riot or Civil commotion
- c) Earthquake, flood, tempest, lightening or other natural physical disaster.
- d) Restrictions imposed by the Government or other statutory bodies which prevents or delays the execution of the order by the BIDDER.

The BIDDER shall advise GIL by a registered letter duly certified by the local statutory authorities, the beginning and end of the above causes of delay within seven (7) days of the

occurrence and cessation of such Force Majeure Conditions. In the event of delay lasting over two months, if arising out of causes of Force Majeure, GIL reserves the right to cancel the order.

Completion period may be extended to circumstances relating to Force Majeure by the GIL. Bidder shall not claim any further extension for completion of work. GIL/GoG shall not be liable to pay extra costs under any conditions.

The BIDDER shall categorically specify the extent of Force Majeure conditions prevalent in their works at the time of submitting their bid and whether the same have been taken in to consideration or not in their quotations. In the event of any Force Majeure cause, the BIDDER shall not be liable for delays in performing their obligations under this order and the delivery dates can be extended to the BIDDER without being subject to price reduction for delayed delivered, as stated elsewhere.

It will be prerogative of GIL/GoG to take the decision on force major conditions and GIL/GoG decision will be binding to the bidder.

41. The Clarifications must be submitted in writing to GIL at least 3 days before the pre-bid meeting date. Thereafter the clarifications received from the bidders will not be entertained.

The bid should be submitted on the website <https://tender.nprocure.com> on or before 1500 Hours, **10.10.2024.**

Please address all queries and correspondence to

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E-mail: dgmTech-gil@gujarat.gov.in hirenp@gujarat.gov.in

Fax / Email should be followed by post confirmation copy.

SCOPE OF WORK

Introduction

The Bidder under the scope of work in this RFP is envisaged to design the solution including but not limited to Supply, Installation and Commissioning of Equipment's/hardware, software required for the successful Implementation and operations of Video Surveillance System at Informatics Ltd., Gandhinagar, Government of Gujarat (herein after referred to as the "TENDERER") as per the functional and technical specifications, scope of work mentioned in this Bid document.

The bidder shall be responsible for implementation of the work as defined in the bid document. Software deployed under this project should be supplied with required OEM support for software update/patches/upgrades during the contract duration and licenses should be valid perpetual for life.

Bidder is also responsible for all the components like networking devices, LAN/CAT6/OFC/Electrical cabling including laying, tagging and ducting power backup, network & architecture design, Racks and accessories, Monitoring Work stations/desktop/server, PC's availability of the system, indoor/outdoor IP cameras, VMS, video storage, NVR and any other devices/accessories like mounting bracket, pole etc. required for the successful running of envisage solution.

This is a Rate contract for the Turnkey/EPC kind of project. Wherein, bidder is required to propose an appropriate solution to meet the outcome envisaged. However, Bidder is responsible for any other components inadvertently missed out but it is required as per the proposed solution of the bidder and is essential for overall solution to successfully run during entire project duration than bidder has to consider the same in his proposed solution. TENDERER will not be liable for payment of any additional cost outside of Financial bid.

The complete scope of work would broadly be: design, engineering, supply, testing, installation, commissioning & maintenance of all project deliverables. Quoted item is required to be offered with **5 (Five) years OEM warranty**. All equipment including material to be installed by the Bidder shall be new. The bidder should submit OEM's confirmation that the Products quoted are not end-of-life for the further period of 2 years from the date of authorization or Bidder has to Supply Higher Model with Same Specification or Higher. All equipment shall conform to the codes, standards and regulations applicable and benefit from the usual manufacturer's guarantees.

Note:-

This document has to be considered as a pure Rate contract. Successful L1 bidder will be awarded contract for the execution of work as per the scope of work and terms & conditions as mentioned in this bid. However, tenderer does not guarantee for bid quantity order against each line items. Orders will be released offline separately based on the actual requirement received during the contract

duration at L1 prices. The bid quantity mentioned in this bid is only indicative & for evaluation purpose only. The actual quantity may vary during the bid validity period.

Scope of work for IP Video Surveillance / CCTV System:

1. The Scope of complete work would broadly include Design, Engineering, Supply, Testing, Installation, Commissioning, Site Acceptance Test, Warranty and Maintenance during the contract period.
2. Supply, Installations, Testing & Commissioning of High-performance IP based video surveillance system with cameras having built-in web browser, remote access and remote management, complete with storage solution.
3. This shall include suitable brackets for mounting the cameras, weather-proof enclosures, fixtures, cables, connectors & any other devices/ peripherals required for the proper functioning of installed cameras.
4. The Successful Bidder has to furnish working drawings, solution design document and as-built drawings, which shall be an essential component of commissioning.
5. The storage should be designed, supply, implement and configured in such a way that it is capable to store & retrieve feeds of all the CCTV cameras in respective site/Location for last 30 days along with the earmarked/flagged feeds by the TENDERER without any additional cost to the TENDERER.
6. All the licenses procured, deployed by the bidder for this bid should be in the name of TENDERER and valid perpetual for life.
7. Successful bidder is required to coordinate with telecom service provider (Connectivity provider) for better viewing of camera as per the requirement for the monitoring.
8. Required alerts will be configured in the camera, as per event management server specification, such that the camera can communicate the required input to the event management server.
9. Network Video Recorder (NVR)/ Video Recording System
 - a) The proposed NVR/ Video recording System shall provide a complete end-to-end solution for security surveillance application. The central control center shall allow an operator to view live / recorded video from any camera on the IP Network.
 - b) The recording system should support viewing of multiple cameras in one screen or viewing of one camera feed on one screen based on user selection. On display, it would be possible to show up to 32 cameras feeds on display at the same time, auto sequencing to bring all feeds and then to pan in and zoom on one or more cameras simultaneously on the video wall if required.
 - c) The above-mentioned requirements are only functional and the detailed module wise specification is given under technical Specification.
 - d) Network Video Recorder and Camera should be configured as per standard Specification up to 30 days recording. The recording should be configured in such a way, when the storage capacity gets to maximum limit., re-write happens on a first in first out basis without any manual intervention. Cameras should be configured to directly access the local NVR and the storage of NVR. This is to make sure recording happens 24x7.
10. At Remote end each side will have local monitor display with Full HD resolution. Local Network video recorder will have only privileged user access which can have control of video monitoring, play back and video retrieval on emergency. There will be a monitoring and management console on State / Zonal office and all the configuration of video recorder, and cameras are managed from state office can be possible. The video footage of local site can

also be retrieved from State / Zonal office if require. Display OEM should have UL/NRTL/ equivalent Indian Standard, FCC/ equivalent Indian Standard and BIS Certification.

11. Camera installation:

- a) During the installation, the camera lens position has to be adjusted to get the desired view in the specific location.
- b) The cameras should be configured with a suitable IP address as per the IP addressing scheme in the specific location.
- c) The camera should be configured in such a way that images and video feeds can be identified distinctively/easily.
- d) The cameras should be configured for automatic day / night display, so that without manual intervention, camera switches to night mode when the light condition is less.
- e) Required alerts will be configured in the camera, as per event management server specification, such that the camera can communicate the required input to the event management server.
- f) All hardware should be heavy durable, industrial grade products equipped for long life and high performance.
- g) All the monitors should be high end commercial displays.
- h) Data must be highly secured with high-level encrypted protection both in LAN and WAN.
- i) All the products will be backed up with high protection using online UPS and surge protectors.
- j) All the Connecting cables should be UTP (23AWG) / fireproof outdoor type cable equipped for high durable application.

12. Automatic Number Plate Recognition (ANPR) System

- a) The bidder shall provide Automatic Number Plate Reader (ANPR) solution at the identified locations. The bidder shall follow the design, operational and physical requirements of the proposed ANPR system to demonstrate compliance with all the specified requirements of RFP.
- b) The placement of the ANPR camera shall ensure no blind spot is left on the area being covered, thus ensuring capture of details of all the vehicles, passing through the demarcated area. It shall process the image using OCR software, for getting the registration number of the vehicle with highest possible accuracy. The system should be able to detect, normalize and enhance the image of the number plate for detection of alpha numerical characters.

13. ANPR Cameras

- a) The broad scope of work to be covered under this will include the following, but is not limited to:
- b) The Implementation Agency shall install the ANPR cameras at the specified locations. This system shall automatically capture the license number plate of the vehicle at these locations.
- c) All camera accessories such as IR Illuminators, camera housing and mounting shall be installed by the Implementation Agency. The Implementation Agency shall supply all of the necessary equipment for the camera and local processing system, including but not limited to: computers local storage, and ancillary camera equipment, camera poles, warning signs and shall make the final connections to the camera.
- d) For more details on technical and functional specifications of ANPR Cameras, Implementation Agency should refer to Functional and Technical Requirements in this RFP.

14. Local Processing Unit (LPU) for ANPR

- a) LPU required for the ANPR software, should support minimum 1 or more ANPR licenses as per site requirement It shall comply to following specification:
- ANPR application should work on local processing unit. LPU shall send processed data to the central software. LPU should provide 7-days storage.

Bidders to consider the solution design in such a way that any LPUs failure at junction level shall not result in failure of more than one junction.

15. ANPR Software

ANPR software should have support following specifications:

1. ANPR Software should use camera to capture the number plates, should not depend upon any hardware sensors.
2. The System shall automatically detect the license plate through the captured video feed in real-time.
3. The system shall perform OCR (optical character recognition) of the license Plate characters (English alpha-numeric characters in standard fonts).
4. The System shall store JPEG image of vehicle and license plate and enter the license plate number into DBMS like MySQL etc. database along with date and time stamp.
5. System should able to detect single row, double row, multi row, square and rectangular plates as well
6. Detect, Recognize and Search License Plates.
7. The system Graphical User Interface should support English & Graphical User interface (GUI) should provide following information:
 - a) Image of the vehicle
 - b) Image of the number plate
 - c) Text conversion of number plate after using OCR (Optical Character Recognition) technology
 - d) Date and Time of offending vehicle
 - e) Event/images/chart of ANPR
8. Records and logs all License Plates at a scene, for forensic investigations.
9. Software should be able to integrate with VMS or third-party VMS at central level.
10. Should trigger the ANPR camera for number capturing.

16. Command Control Centre for monitoring -

- a) This shall include the supply, installation, testing, commissioning and O&M of active and passive components like NVR with storage, Monitors, network switches, along with cabinets, enclosures, fixtures, cables, connectors and any other devices, peripherals required for the proper functioning of various components. Bidder is also responsible for necessary electrification of all the devices including all accessories in the command control center. The Command Control center will be located in a separate room within the same campus or as decided by respective office of the TENDERER.
- b) Actual power/electricity required will be provided by TENDERER. However, extension till the last mile/actual utility will be in the scope of successful bidder. Further, the Recurring Electricity charges under the project shall be paid by the TENDERER.

- c) The images, video feeds displayed on the monitoring displays, video wall should display the camera ID for identification.
- d) The Control Room shall have Display, NVR, networking devices as per the requirement and scope of work for monitoring the same.
- e) The successful bidder will be responsible for the integration of the Cameras with the proposed solution for recording of video feeds. The solution should be configured in such a way, so that the video feeds would be kept for 30 days. After 30 days, the video feeds would be overwritten unless it is flagged or marked by the appropriate authority for investigation or any other purpose.
- f) All cameras recording will happen at Local NVR, Secondary storage at SD card inside camera, incase local recording server is not reachable or down the recording happen on SD card and later incremental backup to Local Recording Server with Raid Technology enabled.

17. Central Infrastructure: For Command Control Centre:

- a) VMS Software will be installed in Workstation/server and respective remote camera will be added on each State / Zonal Office.
- b) Live video and play back can be managed by State / Zonal Workstation/server, In case there is video need to be recorded manually then it can be recorded to Storage and if any video need to download from Remote Office NVR then during playback it can be downloaded and stored in Storage.
- c) Minimum configuration of the workstation for VMS should be Rack Mountable, i7 10th Generation, Server 8C Processor, 2TB SSD, 32GB RAM, 32GB workstation GPU Card.
- d) On demand or Auto tour video live monitoring will happen at State / Zonal Level, Alert based trigger will be configured on Remote office NVR, when even there is an alert for Motion detection/Trip wire/Intrusion detection/Tampering a video clip and snap shot will be pushed to Storage located in State / Zonal Level. The video and snap shot stored in Storage can be viewed directly from Storage which stored with date/time attributes. The Storage can be accessed by workstation/server and view the recorded files. Some of the random recording of warehouse camera should also be done at Zonal and state level to check the activity of Remote office level.
- e) Zonal / State office may require the Full HD Video wall Display /LED Display facility installed with Latest technology input 4K60 4:4:4 Controlling Solution along with ie Switcher/AV over IP/Multimedia Device/Collaboration solution/Audio /Controller /Processor Etc as defined in Tender item Bidder has to install as per requirement of Solution/Project. Solution to get complete Real time overview of entire surveillance system at Central room. Display OEM should have UL/NRTL/ equivalent Indian Standard , FCC/ equivalent Indian Standard and BIS certification.

All device multiple Input i.e. Server/Workstation/ etc. will be Connect with Local Video wall for Viewing Live and Recorder Footage.

- f) All device multiple Input i.e. Server/Workstation/ etc. will be Connect with Local 55" or higher display unit for Viewing Live and Recorder Footage.
- g) The proposed solution should be capable for remote monitoring & mobile viewing of any camera to be installed in any office through Smart phone (mobile) either through application or through browser from anywhere through internet.

18. Central Infrastructure: For Zonal / State Monitoring Centre – If Required:

- a) At Zonal/State level workstation/server and display will be installed for additional monitoring purpose.
- b) The Remote monitoring software will be configured with adequate license to view all the cameras of various respective sites in a single display. Remote monitoring software will be installed in Workstation/server.
- c) Minimum configuration of the workstation for VMS should be i7 10th Generation or latest, Server 8C Processor, 2TB SSD, 32GB RAM, 32GB workstation GPU Card or better with Wireless key board Mouse.
- d) Live video and play back can be monitored by Zonal / State Workstation/server,
- e) On demand or Auto tour video live monitoring will happen at Zonal / State Level.
- f) At-least 32 camera viewing in single screen will be possible simultaneously in the remote monitoring software. Auto sequencing to bring all feeds and then to pan in and zoom on one or more cameras simultaneously on the Display Unit.
- g) Live video and play back will be managed by Workstation, In case there will be any video need to be recorded manually then it can be recorded to Storage and if any video need to download from remote office NVR then during playback it can be downloaded and stored in Storage.
- h) For each 250 cameras, the bidder is required to provide 1 work stations with CMS. There will be auto tour configured on VMS with 32 channels single screen and 5 minutes per cycle. Emergency recording and snapshots were captured manually from CMS to dual controller NAS, Video evidence can be downloaded from local NVR through CMS which can be stored in NAS for further investigation.
- i) Bidder will have to provide required workstation/Server for Live Viewing and Recorded viewing as per requirement of CMS Software and all input and output devices will be connected to Video wall/CCC.
- j) On demand or Auto tour video live monitoring will happen at state centre. The video or Snapshot stored in Storage can be viewed directly from Storage which stored with date/time attributes. The Storage can be accessed by workstation and view the recorded files.
- k) In Core Switch at central location bidder should consider the required module for connecting Server, NAS and Video wall.
- l) Bidder should supply, installation, commissioning & testing of Workstation, Monitors, network switches, controller, video management software with adequate user licenses, along with cabinets, enclosures, fixtures, cables, connectors and any other devices, peripherals required for the proper functioning of various components as per the proposal.

- m) The images LED Videowall displayed should have a watermark for easy identification. The images displayed should have a watermark for easy identification.
- n) The CCC room will be Design on AV over IP technology with Require Input and Out Device with latest technology 4k60 4:4:4 or better.
- o) Command and control to be designed for 24*7 operation should provide enhanced productivity and user-friendly operation in terms of new product and technology.
- p) AV Switcher Device should have Chassis Based with Redundant power supply.
- q) The recording will be configured in such a way, when the storage capacity gets to maximum limit., re-write happens on a first in first out basis without any manual intervention.
- r) Three level of monitoring of all locations – Both live and offline management.
- s) A high-end video wall will have a grand overview of entire setup along with video and health management.
- t) Dual controller NAS will be configured as active-active mode for sharing the load and fail over.
- u) Hard disk shall be configured with RAID 6 protection level. There will be 2 hot swappable power supply configured in active-active mode for load balancing and fail over.
- v) The transmission of images/videos through internet will be having industry standard protocol with secured authentication.
- w) All the videos from IP cameras should be recorded at local NVR and on demand to central NAS.
- x) LED Video wall OEM should have Safety Standard UL/ equivalent Indian Standard, CB/Safety60950-1/equivalent Indian Standard, EMC/ equivalent Indian Standard, FCC/ equivalent Indian Standard and BIS Certification.
- y) Live IP based camera viewing facility should be available either individual or with multiple viewing option. i.e. the user can view any individual or multiple cameras installed remotely at different office, Live static IP and require bandwidth will be Provided by Office at end location and Central Location at CCC Room for Smooth operation at Command Control room for Live Viewing and Recording Data back.

19. Centralized Network Health and Performance management for Command Control Centre Higher SLA:

- a) NMS/HMS system will be installed and configured at state central command control center.
- b) All Cameras and Storage Health monitoring and management will be performed.
- c) Minimum configuration of the workstation for NMS/HMS should be Rack Mountable, i7 10th Generation or latest, Server 8C Processor, 1TB SSD, 32GB RAM, 6GB workstation GPU Card. In case of number of device count is higher, bidder will have to provide adequate hardware for the same.

- d) All Network device health and performance management will be performed.
- e) Instant alerts will be generated to representative if any device is down and escalated to multiple authorities via email configuration, Weekly and month reports will be generated automatically for performance management.

20. Complete Integrated and Centralized Solution

- a) Access to live and recorded video form regional and state level
- b) QOS will be configured for prioritize Surveillance footage, video conference and data transfer.

21. Data / Video Transfer through Highly secured Virtual Private Network

- a) Complete future proof Hardware for Load balancing / Failover over wan when multiple ISP connected.
- b) High Performance Surveillance system
- c) High Definition Full-HD IP Cameras Motorized Optical Zoom
- d) Video analytics like Intrusion detection tamper detection, etc.
- e) Single cable management system – all Cameras POE enabled including PTZ Cameras
- f) All Industrial grade Camera system with IP67 and IK 10 rated housings.
- g) Network POE switches to handle temperature up to 50° C Temperature.

22. High availability fault tolerance storage system

- a) Four layer of Storage, Primary Storage at local office/ location storage and recording Server.
- b) Secondary storage at SD card inside camera, incase local recording server is not reachable or down the recording happen on SD card and later incremental backup to Local Recording Server with Raid Technology enabled.
- c) Third level Storage at Regional Level using high availability dual controller 10G Fiber channel Storage.
- d) Fourth Layer storage of archive of important alert-based video footage at State central.

23. Multiple layer Monitoring and Video management system

- a) Local 24/7 monitoring at remote location of all cameras.
- b) Second level monitoring at Regional office of respective Client.
- c) Third level monitoring at state level for all locations.
- d) All live video monitoring over wan will be optimized based on available bandwidth.

24. Over and above, the bidder to consider following points while offering the products and services as a part of the bid

- a) All the products should be with **5 years of warranty** with Time for Replacement of Defective Product during Warranty Period is 72 hours in case of the HO / District level and 150 hours in the case of remote location at Taluka level.
- b) Camera should be supplied with Surface mounting box and mounting clamps.
- c) Camera should be loaded with 32 GB SD Cards.

- d) All IP cameras should be motorized varifocal lens.
- e) NVR should be loaded with 8 TB Capacity of HDDs for 8 channel NVR, 16 TB Capacity of HDDs for 16 channel NVR, 32 TB Capacity of HDDs for 32 channel NVR, 64 TB Capacity of HDDs for 64 channel NVR and 80 TB Capacity of HDDs for 128 channel NVR.
- f) Each NVR & storage and other required hardware should have adequate throughput for smooth running of camera feed.
- g) All camera and NVR should be ONVIF complied.
- h) Bidder should do the asphalt cutting/boring/RCC/plaster cutting as per site requirements.
- i) Bidder should also consider necessary electrification as per site requirements. Bidder has to take Power for rack for any nearest electrical point. Local power would be provided by client.
- j) Accessories of Video Wall - Type of Inputs should be HDMI, HD Base T / Receiver Input.
- k) Bidder is bound to perform Dismantling and Reinstallation activities at the finalized rate under this RFP for the entire contract period. Bidder has to upload/provide the excel file for per unit rates for the Dismantling and Reinstallation as per **Annexure – AA**. Department may decide cost for Dismantling and Reinstallation as per their requirement.

25. Tenderer should able to connect, view and monitor any Camera installed in the campus/Site from its local device.

26. All the hardware and software features mentioned in the tender specifications should be available at the time submission of tender.

27. System Training: This shall include providing 1-week hands on training related to system operation of the installed peripherals/equipment's to the designated/authorized representative of respective site after the successful commissioning of the project.

28. The bidder has to provide on-site warranty for all equipment's as mentioned in RFP.

29. The deployed resource should be present during the normal office hour of respective site. However, if required he shall remain present beyond office hours as per the requirement of the Office.

30. Deputed resource should have adequate knowledge regarding troubleshooting of computer C.P.U., IP CCTV camera, NVR, VMS and other IT peripherals.

31. Appropriate call register or ticket handling status system should be in place to log and track troubleshooting activity.

32. The successful bidder has to provide on-site warranty for all active components and other equipment as mentioned in RFP.

33. Switcher and Controller OEM should have advance replacement process for hardware failure for Switcher/Encoder/Decoder/AV Switching Component OEM has to give Undertaking letter for same.

34. Structured Cabling work (OFC-6 Core Single mode, CAT 6):

i. Bidder is responsible for laying of required LAN, OFC cables (6 Core Single mode) along with its required accessories like PVC Conduit, HDPE Pipe, GI Pipe, LIU, Pig tail, laying, reinstating the site in its original condition, casing, capping, tagging etc.) for the surveillance infrastructures asked in the RFP.

Bidder has to follow industry best practices of structured cabling like proper laying, tagging, capping, casing, clamping etc.

ii. Best practices of OFC/CAT 6 cable Laying:

- Based on the requirement of the RFP bidder will have to lay the Fiber cable, the same has to be underground only. The Below mentioned best practices to be followed for Underground Cable Laying:
- The Under-Ground Cables should be buried to a depth such that the top of the cable is One meter below the normal ground level. Excavations of trench up to a depth such that the top of the cable is 0.5 meter below the normal ground.
- All the cables should be weather proof, outdoor grade and compliant as per the industry standards
- The bidder is required to submit necessary supporting document in this regard along with the Technical Bid Document.
- Back filling in compacting of the excavated trenches according to the construction's specifications and removal of excess earth from the site.

iii. Standard CAT6 Cabling Best Practices:

- o For Cabling, the Cable used shall be Standard Branded CAT6, 100ohm, 4 pair unshielded twisted pair (UTP).
- o All Floor uplink shall be provided on fiber only and if distance between two-point is less than 90 Mtr. CAT6 cable may be used for Up-link.
- o All node should be connected to switch through I.O. Port and Patch panel only.
- o Cable Tagging shall be at both side and at both end (i.e. node side and rack side and inside and outside of I.O port and Patch panel)
- o Care must be taken to not to stretch or abrade cables during installation, i.e. the pulling tension for cables must not be exceeded.
- o Cables that pass through the infrastructure of the building shall be suitably protected against damage. Through walls and floors this shall involve an appropriate type of sleeve; through any form of metalwork or stiff plastic then a rubber grommet shall be used.
- o On vertical runs, the cables shall be dressed and tied from the bottom up, thus putting minimum strain on the cables.
- o In order that the system may be easily re-routed, or damaged sections quickly replaced, free access to the cable, where possible, is important
- o Sharp bends in the cable will damage the insulating material thus causing unacceptable losses in the transmission medium. Therefore, the internal radius of every bend in a cable shall be such as not to cause damage to the cable, nor impair the characteristics of the cable.
- o Patch panels shall be installed within the Communications 24 nodes from the top, continuing downwards.
- o Patch panels shall be use of PCB Patch Panels.
- o Cable shall not be routed over pipes, conduits, other cabling, ceiling tiles, etc., but shall rest directly on the supporting surface so as to minimize the potential for sharp bends, kinks etc. Every cable used shall be supported in such a way that it is not 25 exposed to undue mechanical strain and so there is no appreciable mechanical strain on the terminations.
- o For cables which are not continuously supported, the maximum distance between supports shall not exceed 50cm (horizontal or vertical).
- o Floor Plans, both hard copy and Soft Copy, suitably marked up to show location and I.O. of each and every data point, and detailing any deviation from the original plan.

35. The bidder has to take approval of respective Office of the TENDERER for Schematics Diagram (Layout) within 15 days from the date of Work Order. Concern person of the TENDERER will decide the location of installation within maximum 15 days from the date of Work Order.

36. The Bidder for better understanding may visit the site(s) with prior written permission from the TENDERER before submission of their bid. The bidder will have to do its own assessment/measurements for finalization of scope of work / supply before submission of their bid.

37. Installation, termination and identification of wiring between station outlets and equipment room shall be considered part of the bidder work.

i. The Successful Bidder has to furnish working drawings and as-built drawings, which shall be an essential component of commissioning.

ii. The Passive Components of structured cabling distribution network will be free from manufacturing defects in material and workmanship under normal and proper use.

38. Apart from the above the bidder need to ensure compliance of the project with Government of India IT security guidelines including provisions of: The Information Technology Act, 2000” and amendments thereof and Guidelines and advisories for information security published by Cert-In/MeitY (GoI) issued till the date of publishing of tender notice. Periodic changes in these guidelines during project duration need to be complied with.

39. Installation of Active Components: The bidder shall be responsible for:

- i. Supply, Installations, Testing & Commissioning of all the active components required for successfully running and maintenance of the entire system as per scope of work, functional and Technical specification of this RFP document.
- ii. Required active components will be installed at the locations identified for the surveillance.
- iii. The cameras have to be connected to the switches.
- iv. Bidder has to install UPS along with necessary electrification, power protection and connecting it with all devices asked under this RFP.

- Bidder has to supply the Solution as per Audio video Standard only.
- Any table cutting for Mic, Pop box and False Ceiling for Speaker etc. It should be aesthetically as per quoted product dimension.
- All Video wall display and 75 inch Display and above it Should be Installed on 18MM Ply or better at centre of Wall or as per requirement of user.
- Project Screen Should be Wall Mounted at center of Wall and Project should cover Maximum Display Area as per Size of Screen Projection.
- If acoustic Work require in CCC Room Solution and any other Electrical work bidder will have Inform to Customer before installation of work.
- All HDMI and USB Cable should be laying in Cable tray only.
- Raw power will be provided by customer till Rack in room for boardroom Solution.
- Any Power Cable of Speaker Should be lay in PVC or Casing capping separately.

40. Operations and Maintenance:

The bidder shall further be responsible for providing required maintenance, service and necessary onsite support/OEM support for the entire contract duration from the date of successful completion of FAT. In case of the campus wide surveillance system where the integrated command control system is also available the bidder shall do and perform the regularly preventive maintenance as part of the maintenance activity, small setups of CCTV system is not coming under this scope. It shall be the bidder's responsibility to replace any defective parts/ equipment's without any additional cost to the TENDERER. The defective part so replaced shall be the property of the bidder. The bidder shall keep enough spares at the SITE location/its own location during warranty and maintenance period to meet SLA parameters and the cost for the spare-parts are to be borne by the bidder. The bidder is expected to transfer the knowledge to the TENDERER or its nominated Technical Team.

Bidder is required to keep some spares during contract period to provide immediate replacement during warranty period.

All the Networking equipment and spares shall be kept in good working condition and shall be repaired or replaced. In case of any equipment which is under warranty the bidder would ensure that all equipment's are repaired/ replaced.

All the electrical equipment and accessories, backup power sources, plugs, wires etc. shall be maintained and if required replaced by the successful bidder at its own cost.

The Successful bidder shall also maintain an up-to-date inventory of all supported equipment and spares and make the same available for review and inspections as per requirement.

41. Preventive Maintenance:

In case of the campus wide surveillance system where the integrated command control system is also available the bidder shall also be responsible for performing/carrying out preventive maintenance activity at least once in a quarter which includes cleaning, dusting and upkeep of interior and exterior, realignment of the deployed equipment's, configuration backup and software up gradation/update of all hardware. The Bidder is required to submit preventive maintenance schedule for all equipment to TENDERER from time to time. After performing preventive maintenance activities, successful bidder is required to submit the detailed report of the same. All such activities should be done preferably during non-working hours or on non-working days/holidays. Small setups of CCTV system are not comes under this scope.

42. SERVICE LEVEL AGREEMENT (SLA) AND PENALTY CLAUSE

S/N	SLA Terms	Description
1	Network Backbone	'Network Backbone' refers to Internet Protocol (IP) based routing infrastructure at which, successful bidder has installed network devices for this project.
2	Latency	'Latency' refers to the average time required for round-trip packet transfers between Selected locations and the respective control center on the selected portions of the network Backbone.

3	Packet Loss	'Packet Loss' refers to the average percentage of IP packets transmitted between Selected Junctions/locations and the respective control center that are not successfully delivered.			
4	Planned Network Outage	'Planned Network Outage' refers to unavailability of network services due to infrastructure maintenance activities such as configuration changes, up gradation or changes to any supporting infrastructure. Details related to such planned outage shall be approved by the TENDERER or authorized authority and shall be notified to all the concerned stakeholder in advance (at least five working days). It is desirable that such outage shall be taken on Sundays or other Government holidays to the extent possible.			
5	Unplanned Network Outage	'Unplanned Network Outage' refers to an instance in which no traffic can pass in or out through which devices are connects to the network Backbone			
6	Time Line for Retrieval of video feeds from the Storage	b.) Retrieval of Event Related (Flagged/marked by the Tenderer or its user department) video feeds from the Local storage: Maximum Retrieval time 3 second c.) Retrieval of Non- Event (Anything which is not flagged/marked) related video feeds from Local Storage: Maximum retrieval time 5 minutes d.) Retrieval of Event related video feeds stored in removable/External disk/drives: Maximum retrieval time 30 Minutes			
7	Not keeping man- power	If successful bidder does not deploy the required specified quantity & quality of manpower as per RFP or a person deployed is not reporting to the duty, there would be a penalty per person per day as defined in below table and will be deducted from the quarterly payment			
8	Incidence Resolution (Network)	The network outage, security or performance related issues impacting the network availability/performance and leading to unavailability of the services. Resolution of incidence as per below priority Levels: • L1 Level Severity: impacting one or more sites. • L2 Level Severity: Impacting 10 or more end devices/utilities • L3 Level Severity: Impacting one or more end devices/utilities			
		#	Severity	Initial Response Time	Issue Resolution Time
		1	Level 1	60 Mins	8 Hour
		2	Level 2	240 Mins	24 Hours
		3	Level 3	480 Mins	72 Hours

43. PENALTY FOR DELAY:

S/n	Activity	Penalty
1	Delay in Delivery/ Supply of Hardware	• 0.5% of Contract value of delayed/Non-Delivered Part (as per Schedule-I of Price BID) item per week or part thereof proportionately for delay in delivery. • Delay beyond 180 Working days the TENDERER may terminate the contract and Forfeit the PBG.

2	Delay in Installation/ Implementation	0.25% of Contract value of delayed item per week or part thereof proportionately for delay in Implementation.
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Note: Maximum Penalty cap for penalty for delay is 10% of contract value for the total contract value.

If TENDERER fails to provide space and related clearances to carry out the job as per the agreement terms, as a result of which the installation of the equipment is delayed and the selected agency is not able to adhere to the schedule for completing the Acceptance Tests. Delay solely on account on above will not be accounted while ascertaining actual delay and penalties thereof.

Note: For calculation of delay any dependencies from User Department will be excluded.

b) OPERATIONAL PENALTIES: Successful Bidder shall be paid Quarterly Payment (QP) for the technical resource provided by the successful bidder. The overall operational penalty would be generally capped at 5% of QP amount and will be recovered against the quarterly payment invoice and Performance bank guarantee (if required) submitted by the successful bidder. Availability will be calculated on a quarterly basis.

S/N	SLA	Target	Penalties
1.	Time Line for Retrieval of video feeds from the Storage	As per SLA	- Rs. 500 for every instance of late retrieval as per the SLA - Note: Data Retrieval Request Through a Request Log Mechanism
2.	*Uptime of all IT components installed at site	99.50% (at each individual component level)	For each component 99.50 - 99.00%- 0.25% of QP; 98.99 - 98.00% -0.5% of QP 97.99 - 97.00%-1.0% of QP 96.99 - 96.00%-1.5% of QP - Less than 96.00%- 2% of the QP - If the uptime goes below 95% consequently for two quarters, then in that case tenderer may terminate the contract and forfeit the PBG.

* up time mentioned here is required to achieve for each site components.

c) COMPLAINT RESOLUTION: The bidder shall be responsible for maintaining the desired performance and availability of the Network devices supplied under the scope of work of this RFP. The bidder should ensure the prompt service support during Contract period. If complain is made before 4 pm of the working day, the same should be attended on the same day.

Site/Location	Penalty for delay in resolution of complaints beyond 72 hours in case of the HO / District level and 150 hours in the case of remote location at Taluka level.
All Sites	Rs. 500/- per complaint per day or part thereof

Resolution Time: - Defined as time taken to resolve a problem. The resolution time will be considered with respect to clock hours. If the successful bidder fails to attend the uptime and complaint resolution as specified above, the operational penalty will be imposed as specified above which will be recovered from quarterly payment or from PBG.

For Manpower: If the deputed manpower is absent without informing, Dept. will apply Rs. 200 per day penalty for each day absent from the payment. The amount of Penalty shall be subject to a maximum limit of 10% on payment. The bidder has to deploy one manpower at the location if required by the Dept. and in case of his absence, the bidder has to deploy replacement of manpower for that period.

Exceptions:

Downtime planned for prescheduled changes / Maintenance activities and the same shall be intimated in advance to the Tenderer for prior approval and downtime in such cases shall not be more than 12 hours in quarter. Force Majeure conditions as mentioned in the RFP.

Note:

In case, there is delay attributable to granting access to the equipment to be restored on the part of TENDERER or on part of end user, such delays shall be reduced from the time taken for call completion after due consideration by the TENDERER/GIL.

d). PENALTY FOR DELAY IN REPAIR/REPLACEMENT OF FAULTY MATERIAL: The Successful Bidder shall be responsible for repair/ replace all faulty material within the shortest possible time thus ensuring minimum downtime.

- The Successful Bidder shall be responsible for maintaining the desired performance and availability of the system/services. Successful Bidder should ensure the prompt service support for the entire project duration. If any complain is Register by Customer by mail or Telephonic Official Number then it has to resolved within 3 working Days from the time of complaint raised
- If Successful Bidder fails to resolve the issue as specified above, the following penalty will be imposed on each delayed day, which will be recovered against the quarterly payment invoice submitted by the successful bidder:

Site/Location	Penalty for each delay is resolution of issues within stipulated time
All Sites	Rs. 500/- per site for every 72 hours in case of the HO / District level and 150 hours in the case of remote location at Taluka level of delay or part thereof.

44. PROJECT IMPLEMENTATIONS

44.1 Project Implementation Timelines:

S/N	Deliverables	Timeline
1	<u>Kick-off Meeting:</u> (Submission of Detailed implementation plan/roadmap, Signing of contract agreement and submission of performance Bank Guarantee)	Within 15 Days from date of issuance of Lol/work order
2	Delivery of the ordered items as per the work order.	T+ 120 days
3	Installation of the delivered goods as per order.	T+180 Days

Note: T = Kick off meeting

Days = Working days

45. Manpower Requirement (Optional):

- I. The bidder has to ensure that appropriate qualified manpower with requisite skill sets is deputed at the respective locations defined by the department. The bidder shall depute the resources as per the requirements for carrying out the O&M Activity and maintaining the SLA during contract period.
- II. The requirement of manpower is fully optional, their qualification and responsibility of each resource is given below:
- III. The bidder may deploy any number of resources to meet the SLA if required. The TENDERER shall not pay any cost for additional resources required to operate, maintain, monitor & manage the SLA. In case support staff is not available or is on leave, the bidder is required to provide the alternative personnel with same or higher technical capabilities of the non-available personnel.
- IV. The bidder shall be responsible for the deployment, transportation, accommodation, IT infrastructure and other requirements of all its employees required for the execution of the work and for all costs/charges in connection thereof. Tenderer will provide the required sitting space with table, chair, and electricity for day to day activity.
- V. The bidder shall provide and deploy “dedicated on site manpower” for carrying out the work, only those manpower resources who are skilled and experienced in their respective trades and who are competent to execute or manage/supervise the work in a proper and timely manner as per the RFP.
- VI. The bidder shall maintain backup personnel and shall promptly provide replacement of every person removed pursuant to this section with an equally competent substitute from the pool of backup personnel.
- VII. In case of change in its team composition owing to attrition the Successful Bidder shall ensure at least a week of time-overlap in activities to ensure proper knowledge transfer and handover/takeover of documents and other relevant materials between the outgoing and the new member.

viii. Roles and Responsibilities of Client/ Department

- Provide access to selected agency for execution of Project
- Provide space, raw power and all necessary approvals to smoothly execute the project.
- Provide approval & facilitate agency for deciding location of camera in consultation with selected agency.
- Provide the sitting space to technical manpower at respective location of department.

ix. Roles and Responsibilities of Manpower - if deployed.

- Responsible for overall Operations and management of new IT Infrastructure, hardware, peripherals of respective site including LAN/WAN, IP CCTV Surveillance system, MIS Reporting, SLA Management etc.
- Managing day-to-day activity and project operations to meet SLA
- Preparation of Report including day to day activity, Call logging, up time, down time, response time of each event & submission of quarterly report to respective officer as a supportive document for O&M activity and its payment.

SERVICE TERMS

- The entire scope of the work depends on the technical skill and experience in management of the same level or kind of infrastructure.
- It is mandatory for successful bidder to deploy qualified professional to install, commission and maintain the equipment, as defined under scope of work.
- The successful bidder has to submit regular schedule of man power availability and get it approved by GIL/GoG/user department.
- The successful bidder has to deploy necessary problem escalation process and system to take care users at priority.
- The successful bidder is free to deploy or to develop applications to facilitate the operation. GIL/GoG/user department will welcome the deployment such application in respect to improve Quality of Services.
- For extending better services to the government, the successful bidder will be allowed to deploy and use own tested and proven solution, with prior permission form the GIL/GoG/user department.
- The Government network is being operated and maintained by various agencies. In such circumstances the successful bidder may need to coordinate and approach various agencies, if required.
- The successful bidder needs to maintain the required security of network, database, e- mails etc. related to the government operations.
- The successful bidder is responsible to maintain documentation on the progress of the work and will have to update the same on regular basis. Bidder will have to submit the progress reports regularly, as per the guide line issued by GIL/GoG/user department.
- The understanding of the comprehensive maintenance under warranty period is as follows.
- In case of failure, the successful bidder needs to replace or repair the faulty part/component/device to restore the services at the earliest.
- The cost of the repairing or replacement of faulty part/component/device has to be entirely born by the successful bidder.
- All expenses related to part/component/device, including hiring of specialized technical expertise, in case required, has to be borne by the successful bidder as part of comprehensive maintenance.
- The successful bidder also needs to make alternate arrangements in case of major failure happens in the network, due to which services may be affecting for longer period.
- After repairing or replacement of the part/component/device, the successful bidder needs to put the same into operation.
- The escalation of the rate during the rate contract is not permitted.

APPROVALS / CLEARANCES

Necessary approvals/ clearances concerned authorities, for establishing the proposed project are to be obtained by the Purchaser/Client.

PROJECT IMPLEMENTATION

- The successful bidder will implement the project strictly as per the plan approved by GIL/GoG/user department. The Bidder shall carry out cabling work at such locations as may be selected by GIL/GoG/user department within a specified period as specified in Instruction letter / LOI / Order and complete their provisional Acceptance Test to the satisfaction of GIL/GoG/user department within 10 days from the date specified. This period may be extended depending upon the fulfilment of Conditions Precedent.

- GIL, Government of Gujarat will be Engineer-In-Charge of the Project and all inspection, installation; commissioning and acceptance of work will be undertaken by its designated agency(s).
- As part of implementation the successful bidder shall provide details of equipment that will be incorporated in the proposed system, material and manpower as required. The location for storing spare parts and quantity there on should also be clearly indicated.
- The successful bidder shall provide the necessary technical support, Standard Operating Procedure (SOP) and other information to GIL/GoG/user department and its user organizations in implementing the proposed system applications. GIL/GoG/user department at any time during the currency of the Agreement should have access to the proposed sites.
- The successful bidder may have to work during Holidays and Sundays, the successful bidder will have to obtain required permission to carry out the work on holidays/Sundays from the concerned.
- The successful bidder shall not disturb or damage the existing network of communication. If in case any damage to the network is done, the same shall be corrected with no extra cost. The successful bidder shall also be responsible for paying penalty, as imposed by the service owner to which the damage is incurred.
- In case of the material/solution supplied and installed is rejected owing to its non- conformity to the specification or due to the poor quality of workmanship, the same shall be replaced promptly.
- successful bidder shall treat all matters connected with the contract strictly confidential and shall undertake not to disclose, in any way, information, documents, technical data, experience and know how, without prior written permission from GIL/GoG/user department.
- Any damage caused to the property of Government of Gujarat while executing the job shall be solely successful bidder's responsibility. In case any damage to the property is caused, the same will be recovered from the successful bidder. No any extra cost shall be paid to the successful bidder for such reasons.
- The successful bidder shall have to furnish the documentation of the work undertaken in consultation with Engineer-in-charge/GoG rep. such documentation should be provided.
- It is a turnkey project. The successful bidder shall be fully responsible for implementing the Project in totality and should include the items and their prices, if not included in Schedule of Requirement to complete the project on turnkey basis. Any claim whatsoever in this regard will not be entertained later on.
- In the event of the delay in delivery of contracted services or services is not satisfactory the purchaser may procure goods from elsewhere as prescribed in bid and successful bidder shall be liable with out limitations for the difference between the cost of such substitution and the price set forth in the contract for the goods involved i.e. at the risk and cost of the successful bidder.
- GIL/GoG/user department reserves the right to visit any working site of the successful bidder without prior intimation.
- The successful bidder shall be solely responsible for obtaining necessary insurance as per the statutory requirement under government laws for manpower and machinery on the site. GIL/GoG/user department will not be responsible for any kind of loss or damage to the successful bidder during the contract period.
- All work shall be performed and executed by the Supplier in strict conformity with the engineer-in-charge / representative from GoG and any relative instruction issued to the Supplier by the Engineer-in-charge time to time.

ACCEPTANCE TEST

Acceptance Test will be conducted in as follows:

- GIL/GoG/user department Government of Gujarat reserves the right to inspect equipment's and OFC, CAT-6 cables etc. The cost of all such tests shall be borne by the successful bidder. Any inspected goods fail for confirm to specification will be rejected, and successful bidder shall have to replace the rejected goods as per the contract specification without any financial implication to the GIL/GoG/user department. Further GIL/GoG/user department may issue a show cause notice in such matter with warning of backlisting if it found. Sample approval should be obtained before installation for such material.
- The first step will involve successful installation of all sites. The provisional acceptance of these sites will be defined as Partial Acceptance.
- Final Acceptance Test (FAT): After successful installation of the System in accordance with the requirements as mentioned in Schedule of Requirement, Final Acceptance Test will be conducted. After successful testing, Acceptance Test Certificate will be issued by GIL/GOG to the successful bidder.
- The date on which Acceptance certificate is issued shall be deemed to be the date of successful commissioning of the System.
- Any delay by the successful bidder in the Acceptance Testing shall render the successful bidder liable to the imposition of appropriate Penalties.

INSTALLATION REQUIREMENTS

The successful bidder needs to pull necessary cables up to required place, using approved PVC Casing/Piping/Channel/RF/CAT6 Cable.

SOFTWARE LICENCES (IF APPLICABLE)

The bidder shall be responsible for providing Software (System Software, Application Software, Device Drivers, IOS, etc.) required, if any, to meet any additional requirements during the currency of the Agreement without any additional cost to GoG. All license software must be in the name of GIL/GoG/user department, Govt. of Gujarat. The ownership of any involved customize software will be of the GIL/GoG/user department, Govt. of Gujarat.

TECHNICAL BID FORMAT

Note: The bidder has to upload/attach/submit a file as per below format along with relevant brochures mentioning the item quoted, its make and model and Deviation/ Remarks (if any) as per specifications mentioned.

S/N	Item Description	Unit	Make and Model	Matched/ Not Matched	Deviation/ Remarks If any	Brochures/ Supporting Document Attached (Yes/No)
1						
2						
3						
4						
5						

Important Note: Immediate temporary Replacement of faulty equipment/s need to be provided to end-users during the period of repair without any additional cost to Govt. of Gujarat. Bidder is required to maintain sufficient spare inventory for the above purpose.

SECTION I

Bid Processing Fees & Earnest Money Deposit Details

Sr. No.	Item	Amount (In Rs.)	Name of the Bank & Branch	Demand Draft No.
1	Bid Processing Fees			
2	Earnest Money Deposit (E.M.D.)			

Authorization Letters

Sr. No.	Items	Name of OEM	Authorization letter attached. (Yes/No)
1.	2MP Dome Camera		
2.	2MP Bullet Camera		
3.	2MP Long Range Bullet Camera		
4.	2MP PTZ Camera 30X		
5.	2MP Box Camera		
6.	5MP Dome Camera		
7.	5MP Bullet Camera		
8.	5MP Long Range Bullet Camera		
9.	5MP PTZ Camera 30X		
10.	5MP Box Camera		
11.	2MP Motorized LPR Bullet Camera		
12.	IR Illuminator		
13.	Joystick		
14.	8 Channel NVR with 2 SATA Interface Loaded with Loaded with 8TB Storage Capacity		
15.	16 Channel NVR with 8 SATA Interface Loaded with 16TB Storage Capacity		
16.	32 Channel NVR with 8 SATA Interface Loaded with 32TB Storage Capacity		
17.	64 Channel NVR with 8 SATA Interface Loaded with 64TB Storage Capacity		
18.	128 Channel NVR with 16 SATA Interface Loaded with 80TB Storage Capacity		
19.	8 Port Network PoE Switch		
20.	8 Port Network Industrial Grade PoE Switch		
21.	24 Port Network PoE Switch		
22.	24 Port Network Layer 2 Switch		
23.	24 Port SFP Network Switch		
24.	48 Port Layer 3 Switch		
25.	24 Port Layer 3 Switch		
26.	MiniGBIC Transceiver		

27.	Network Rack		
28.	9U Outdoor Network Rack		
29.	42 U Cooling Rack with required UPS power		
30.	Online UPS		
31.	Surge Protection Device		
32.	CAT6 Cable Indoor		
33.	CAT6 Cable Outdoor		
34.	Port Patch Panel		
35.	Copper / Fiber Hybrid Patch Panel		
36.	CAT6 Patch Cord		
37.	CAT6 Information Outlet and Face Plate		
38.	SM Type OFC		
39.	LIU Fully Loaded		
40.	Fibre Splice closure		
41.	Fiber Patch Cord Single Mode		
42.	VMS for Monitoring		
43.	VMS Base plus client License		
44.	HMS		
45.	NMS		
46.	Server		
47.	Network Attached Storage		
48.	43" Display		
49.	55" Display		
50.	75" Interactive Display with OPS		
51.	85" Interactive Display with OPS		
52.	55" Video wall		
53.	Zero Bezel Gap Video wall		
54.	136 Led Display		
55.	163" Zero Bezel LED Display		
56.	Out Door LED		
57.	Graphical User Interface		
58.	Data wall Processor		
59.	Matrix Switcher Based Processor -32 Port		
60.	Matrix Switcher Based Processor -16Port		
61.	Switcher with Processor		
62.	Relay Controller		
63.	Datawall Collaboration Solution		
64.	Switcher Solution		
65.	Datawall Resolution Manager		
66.	Touch Controller Panel		
67.	AV Network Switch		

68.	Video Transceiver		
69.	Digital Signal Processor		
70.	Indoor Speaker wall mount		
71.	Mounting Power Distribution		
72.	AOC HDMI Cable		
73.	Multi Device input and Out Put Connectivity		
74.	USB Cable		
75.	CAT6A Cable		
76.	Audio Mixer		
77.	IP Power Amplifier		
78.	Extension Box		
79.	Wireless Microphone		
80.	Active wall Plate		
81.	Matrix Multiviewing Switcher		
82.	Digital Signal Audio booster		
83.	Room Scheduler		
84.	Multichannel streaming network amplifier		
85.	Key pad Controller		
86.	Graphic /Capture Card 4K Resolution		
87.	Audio Video Over the Network		
88.	Audio /Video collaboration Software		
89.	Multi Device out /in Processor		
90.	Multi Device AV and IT Device Programing software Application		
91.	Multiwindow Operation/Display Solution		
92.	ICCC infrastructure Management		

SECTION II

Make & Model List

Sr. No.	Items	Make and Model	Supporting Document uploaded? (Yes/No)
1.	2MP Dome Camera		
2.	2MP Bullet Camera		
3.	2MP Long Range Bullet Camera		
4.	2MP PTZ Camera 30X		
5.	2MP Box Camera		
6.	5MP Dome Camera		
7.	5MP Bullet Camera		
8.	5MP Long Range Bullet Camera		
9.	5MP PTZ Camera 30X		
10.	5MP Box Camera		
11.	2MP Motorized LPR Bullet Camera		
12.	IR Illuminator		
13.	Joystick		
14.	8 Channel NVR with 2 SATA Interface Loaded with 8TB Storage Capacity		
15.	16 Channel NVR with 8 SATA Interface Loaded with 16TB Storage Capacity		
16.	32 Channel NVR with 8 SATA Interface Loaded with 32TB Storage Capacity		
17.	64 Channel NVR with 8 SATA Interface Loaded with 64TB Storage Capacity		
18.	128 Channel NVR with 16 SATA Interface Loaded with 80TB Storage Capacity		
19.	8 Port Network PoE Switch		
20.	8 Port Network Industrial Grade PoE Switch		
21.	24 Port Network PoE Switch		
22.	24 Port Network Layer 2 Switch		
23.	24 Port SFP Network Switch		
24.	48 Port Layer 3 Switch		
25.	24 Port Layer 3 Switch		
26.	MiniGBIC Transceiver 1G		
27.	MiniGBIC Transceiver 10G		
28.	MiniGBIC Transceiver 1G -80km		
29.	MiniGBIC Transceiver 10G – 80km		
30.	9U Network Rack with 600VA UPS		
31.	9U Outdoor Network Rack		
32.	12U Network Rack		

33.	24U Network Rack		
34.	42U Network Rack		
35.	42 U Cooling Rack with required UPS power		
36.	1KVA Online UPS with 30Min Back-up		
37.	3KVA Online UPS with 30Min Back-up		
38.	5KVA Online UPS with 30Min Back-up		
39.	20KVA Online UPS with 30Min Back-up		
40.	Surge Protection Device		
41.	CAT6 Cable Indoor		
42.	CAT6 Cable Outdoor		
43.	CAT6 8 Port Patch Panel		
44.	CAT6 24 Port Patch Panel		
45.	Copper / Fiber Hybrid Patch Panel		
46.	CAT6 Patch Cord -1Mtr		
47.	CAT6 Patch Cord -2Mtr		
48.	CAT6 Information Outlet and Face Plate		
49.	4 core single mode Drop cable		
50.	6 Core SM Type OFC		
51.	12 Core SM Type OFC		
52.	24 Port LIU Fully Loaded		
53.	12 Port LIU Fully Loaded		
54.	24 Core Fibre Splice closure		
55.	12 Core Fibre Splice closure		
56.	Fiber Patch Cord Single Mode		
57.	VMS for Monitoring		
58.	VMS Base plus client License		
59.	HMS		
60.	NMS		
61.	Server		
62.	Network Attached Storage with 200 TB Storage Capacity		
63.	Network Attached Storage with 500 TB Storage Capacity		
64.	Network Attached Storage with 1PB Storage Capacity		
65.	Network Attached Storage with 2PB Storage Capacity		
66.	43" Display		
67.	55" Display		
68.	75" Interactive Display with OPS		
69.	85" Interactive Display with OPS		
70.	55" Video wall		
71.	Zero Bezel Gap Video wall		

72.	136 Led Display		
73.	163" Zero Bezel LED Display		
74.	Out Door LED		
75.	Graphical User Interface		
76.	Data wall Processor		
77.	Matrix Switcher Based Processor -32 Port		
78.	Matrix Switcher Based Processor -16Port		
79.	Switcher with Processor		
80.	Relay Controller		
81.	Datawall Collaboration Solution		
82.	Switcher Solution		
83.	Datawall Resolution Manager		
84.	Touch Controller Panel		
85.	AV Network Switch		
86.	Video Transceiver		
87.	Digital Signal Processor		
88.	Indoor Speaker wall mount		
89.	Mounting Power Distribution		
90.	AOC HDMI Cable		
91.	Multi Device input and Out Put Connectivity		
92.	USB Cable		
93.	CAT6A Cable		
94.	Audio Mixer		
95.	IP Power Amplifier		
96.	Extension Box		
97.	Wireless Microphone		
98.	Active wall Plate		
99.	Matrix Multiviewing Switcher		
100.	Digital Signal Audio booster		
101.	Room Scheduler		
102.	Multichannel streaming network amplifier		
103.	Key pad Controller		
104.	Graphic /Capture Card 4K Resolution		
105.	Audio Video Over the Network		
106.	Audio /Video collaboration Software		
107.	Multi Device out /in Processor		
108.	Multi Device AV and IT Device Programing software Application		
109.	Multiwindow Operation/Display Solution		
110.	ICCC infrastructure Management		

Note: The Bidder may quote only one option (i.e. one Make and Model can be quoted) against each item. Bidders are required to mention Make and Model of the product (Do not write “OEM” against items). Bidders are expected to give make and model of the product). Ensure that all equipment including material to be installed by the Bidder shall be new and the product should not be desupported or declared end of life/end of support during the next 5 years.

Form no. T2 (TECHNICAL MINIMUM SPECIFICATIONS)

1. 2MP Dome Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	2MP or Higher
4	Resolution	Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel)
5	Day::Night Capable	Yes
6	IR illumination Range (mtr)	50 or better
7	Focal Length(mm)	3.0 ~ 11.0 or better
8	Frame Rate (FPS)	25/30 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1 st stream at 1080P and 2nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	2
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay Output	1
18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB
24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Indoor
28	Material of the Housing construction	Aluminum
29	Protection	IP66, IK 10 rated housing
30	Mounting bracket	Wall & Ceiling Mounted
31	Power Input	PoE
32	Warranty (A)	5 years

33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Motorized Varifocal
36	Type of Camera Housing	Dome CAMERA
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Optical Zoom	NA
41	Digital Zoom	12X or better
42	Tilt Speed (deg::Sec)	NA
43	ONVIF Support	Yes, ONVIF Profile S, G, T.
44	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
45	Audio	All type of IP camera has inbuilt/External mic and connectivity option for external mic in the supplied camera from day1. Bidder should ensure that audio recording should be happen along with video on storage device from day 1
46	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
47	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
48	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

2. 2MP Bullet Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	2MP or Higher
4	Resolution	Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel)
5	Day::Night Capable	Yes
6	IR illumination Range(mtr)	70 or better
7	Focal Length(mm)	3.0 ~ 11.0 or better
8	Frame Rate (FPS)	25/30 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the

		time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1st stream at 1080P and 2nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	2
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay Output	1
18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB
24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Outdoor
28	Material of the Housing construction	Aluminum
29	Protection	IP67, IK 10 & NEMA-4X rated housing
30	Mounting bracket	Wall Mounted
31	Power Input	PoE
32	Warranty (A)	5 years
33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Motorized Varifocal
36	Type of Camera Housing	Bullet Camera
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Optical Zoom	NA
41	Digital Zoom	12X or better
42	Tilt Speed (deg::Sec)	NA
43	ONVIF Support	Yes, ONVIF Profile S, G, T.
44	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL

		certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
45	Audio	All type of IP camera has inbuilt/External mic and connectivity option for external mic in the supplied camera from day1. Bidder should ensure that audio recording should be happen along with video on storage device from day 1
46	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
47	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
48	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

3. 2MP Long Range Bullet Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	2MP or Higher
4	Resolution	Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel)
5	Day::Night Capable	Yes
6	IR illumination Range(mtr)	100 or better
7	Focal Length(mm)	5.0 ~ 50.0
8	Frame Rate (FPS)	25/30 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1st stream at 1080P and 2nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	1
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay Output	1

18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB
24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Outdoor
28	Material of the Housing construction	Aluminum
29	Protection	IP67, IK 10 & NEMA-4X rated housing
30	Mounting bracket	Wall Mounted
31	Power Input	PoE
32	Warranty (A)	5 years
33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Motorized Varifocal
36	Type of Camera Housing	Bullet Camera
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Optical Zoom	NA
41	Digital Zoom	12X or better
42	Tilt Speed (deg::Sec)	NA
43	ONVIF Support	Yes, ONVIF Profile S, G, T.
44	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
45	Audio	All type of IP camera has inbuilt/External mic and connectivity option for external mic in the supplied camera from day1. Bidder should ensure that audio recording should be happen along with video on storage device from day 1
46	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
47	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
48	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras.

	4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.
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4. 2MP PTZ Camera 30X

Sr. No.	Specification Name	Bid Requirement
1.	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2.	Image Sensor Size	0.357 or better
3.	Camera Image Sensing capacity (Picture Mode)	2MP or Higher
4.	Resolution	Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel)
5.	Day::Night Capable	Yes
6.	Min. Illumination	Color mode: 0.005 lux @ F1.6 or better B/W: 0 lux with IR illumination on
7.	Scanning System	Progressive
8.	S / N Ratio	≥ 55dB
9.	IR illumination Range(mtr)	200 meter or better
10.	IR Intensity	Automatically Adjust
11.	IR on/Off Control	Auto
12.	WDR	True WDR 120 db or better
Lens		
13.	Optical Zoom	30X or better
14.	Focal Length	4.3 to 129mm (The minimum required optical zoom is 30 X). Focal length of 4.3 to 129. ± 25 % is accepted.
15.	Focus Control	Auto/Manual
Video		
16.	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
17.	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile can have its own compression resolution, frame rate and quality independently. Should support minimum two (2) streams at 2MP.
18.	Frame Rate	1920×1080 @ 25/30 FPS
19.	Day and Night	Automatic, Color, Mono
20.	White Balance	Auto & Manual
21.	Noise Reduction	2D & 3D
22.	Motion Detection	Required
23.	Region of Interest	Required
24.	Digital Zoom	16X or better
Network		
25.	Ethernet	RJ-45 (10/100Base-T)
26.	Alarm I/O	Minimum 1 Input & 1 Output contact for 3rd party interface
27.	Protocols	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
28.	Streaming Method	Unicast / Multicast

29.	Local Storage	Minimum 32 GB and should support up to 256GB. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
Pan Tilt Zoom		
30.	PTZ	Pan: 360° endless/continuous, 250°/s (Auto), 0.1 to 200°/s (Manual)
		Tilt: -10° to +90° (Auto flip), 150°/s (Auto), 0.1 to 120°/s (Manual)
		30x optical zoom and 16x digital zoom
		300 preset positions
		Auto-Tracking
		Pre-set tour
31.	Security	Password Protection, IP Address filtering, User Access Log, HTTPS encryption, IEEE 802.1X network access control
32.	Intelligent Video	Motion Detection, Camera Tampering, Loitering, Line crossing, Intrusion, Human & Vehicle detection and Auto Tracking
33.	Event Trigger	Camera tampering detection, digital input, manual trigger, motion detection, SD card full
34.	Event Action	Event notification via digital output, email, HTTP, FTP, SD card File upload via email, HTTP, FTP, SD card Move to preset
35.	Power	PoE+ IEEE 802.3at/PoE++ IEEE 802.3bt and 12VDC/24AC/24VDC/36VDC
General		
36.	Working Temperature/ Humidity	0°C to 60 °C, 10-95% RH
37.	IP Rating	IP66/IP67, IK10, NEMA 4X or higher
38.	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
39.	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
40.	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

5. 2MP Box Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	2MP or Higher
4	Resolution	Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel)
5	Day::Night Capable	Yes
6	IR illumination Range(mtr)	External IR based on the requirement

7	Focal Length(mm)	2.8~12mm/ 3~10mm/ 8~40mm/ 5~50mm C/CS Mount lens
8	Frame Rate (FPS)	50/60 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1st stream at 1080P and 2nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	1
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay Output	1
18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB
24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Indoor & Outdoor
28	Material of the Housing construction	Aluminum
29	Protection	IP67, IK 10 & NEMA-4X rated housing
30	Mounting bracket	Wall Mounted
31	Power Input	PoE IEEE 802.3af/ PoE+ IEEE 802.3at and 12VDC/24AC/24VDC
32	Warranty (A)	5 years
33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Varifocal, C/CS Mount Lens with Remote Focus
36	Type of Camera Housing	Box Camera
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Digital Zoom	12X or better
41	Tilt Speed (deg::Sec)	NA

42	ONVIF Support	Yes, ONVIF Profile S, G, T.
43	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
44	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
45	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
46	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

6. 5MP Dome Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	5MP or Higher
4	Resolution	5MP (2560 X 1920/ 2592 X 1944), Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel) or better
5	Day::Night Capable	Yes
6	IR illumination Range(mtr)	50 or better
7	Focal Length(mm)	3.0 ~ 11.0 or better
8	Frame Rate (FPS)	25/30 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1st stream at 5MP and 2nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	2
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay	1

	Output	
18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB
24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Indoor
28	Material of the Housing construction	Aluminum
29	Protection	IP66, IK 10 rated housing
30	Mounting bracket	Wall & Ceiling Mounted
31	Power Input	PoE
32	Warranty (A)	5 years
33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Motorized Varifocal
36	Type of Camera Housing	Dome CAMERA
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Optical Zoom	NA
41	Digital Zoom	12X or better
42	Tilt Speed (deg::Sec)	NA
43	ONVIF Support	Yes, ONVIF Profile S, G, T.
44	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
45	Audio	All type of IP camera has inbuilt/External mic and connectivity option for external mic in the supplied camera from day1. Bidder should ensure that audio recording should be happen along with video on storage device from day 1
46	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
47	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
48	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be

	registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.
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7. SMP Bullet Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	5MP or Higher
4	Resolution	5MP (2560 X 1920/ 2592 X 1944), Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel) or better
5	Day::Night Capable	Yes
6	IR illumination Range(mtr)	70 or better
7	Focal Length(mm)	3.0 ~ 11.0 or better
8	Frame Rate (FPS)	25/30 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1st stream at 5MP and 2nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	2
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay Output	1
18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB
24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Outdoor
28	Material of the Housing construction	Aluminum

29	Protection	IP67, IK 10 & NEMA-4X rated housing
30	Mounting bracket	Wall Mounted
31	Power Input	PoE
32	Warranty (A)	5 years
33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Motorized Varifocal
36	Type of Camera Housing	Bullet Camera
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Optical Zoom	NA
41	Digital Zoom	12X or better
42	Tilt Speed (deg::Sec)	NA
43	ONVIF Support	Yes, ONVIF Profile S, G, T.
44	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
45	Audio	All type of IP camera has inbuilt/External mic and connectivity option for external mic in the supplied camera from day1. Bidder should ensure that audio recording should be happen along with video on storage device from day 1
46	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
47	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
48	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

8. 5MP Long Range Bullet Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	5MP or Higher
4	Resolution	5MP (2560 X 1920/ 2592 X 1944), Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel) or better
5	Day::Night Capable	Yes

6	IR illumination Range(mtr)	100 or better
7	Focal Length(mm)	5.0 ~ 50.0
8	Frame Rate (FPS)	25/30 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1st stream at 5MP and 2nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	1
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay Output	1
18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB
24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Outdoor
28	Material of the Housing construction	Aluminum
29	Protection	IP67, IK 10 & NEMA-4X rated housing
30	Mounting bracket	Wall Mounted
31	Power Input	PoE
32	Warranty (A)	5 years
33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Motorized Varifocal
36	Type of Camera Housing	Bullet Camera
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Optical Zoom	NA

41	Digital Zoom	12X or better
42	Tilt Speed (deg::Sec)	NA
43	ONVIF Support	Yes, ONVIF Profile S, G, T.
44	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
45	Audio	All type of IP camera has inbuilt/External mic and connectivity option for external mic in the supplied camera from day1. Bidder should ensure that audio recording should be happen along with video on storage device from day 1
46	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
47	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
48	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

9. 5MP PTZ Camera 30X

Sr. No.	Specification Name	Bid Requirement
1.	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2.	Image Sensor Size	0.357 or better
3.	Camera Image Sensing capacity (Picture Mode)	5MP or Higher
4.	Resolution	5MP (2560 X 1920/ 2592 X 1944), Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel) or better
5.	Day::Night Capable	Yes
6.	Min. Illumination	Color mode: 0.005 lux @ F1.6 or better B/W: 0 lux with IR illumination on
7.	Scanning System	Progressive
8.	S / N Ratio	≥ 55dB
9.	IR illumination Range(mtr)	200 meter or better
10.	IR Intensity	Automatically Adjust
11.	IR on/Off Control	Auto
12.	WDR	True WDR 120 db or better
Lens		
13.	Optical Zoom	30X or better
14.	Focal Length	4.3 to 129mm (The minimum required optical zoom is 30 X). Focal length of 4.3 to 129. ± 25 % is accepted.
15.	Focus Control	Auto/Manual
Video		

16.	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
17.	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile can have its own compression resolution, frame rate and quality independently. Should support minimum two (2) streams at 2MP.
18.	Frame Rate	5MP (2560 X 1920/ 2592 X 1944) @ 25/30 FPS & 2MP (1920 X 1080) @ 50/60 FPS
19.	Day and Night	Automatic, Color, Mono
20.	White Balance	Auto & Manual
21.	Noise Reduction	2D & 3D
22.	Motion Detection	Required
23.	Region of Interest	Required
24.	Digital Zoom	16X or better
Network		
25.	Ethernet	RJ-45 (10/100Base-T)
26.	Alarm I/O	Minimum 1 Input & 1 Output contact for 3rd party interface
27.	Protocols	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
28.	Streaming Method	Unicast / Multicast
29.	Local Storage	Minimum 32 GB and should support up to 256GB. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
Pan Tilt Zoom		
30.	PTZ	Pan: 360° endless/continuous, 250°/s (Auto), 0.1 to 200°/s (Manual)
		Tilt: -10° to +90° (Auto flip), 150°/s (Auto), 0.1 to 120°/s (Manual)
		30x optical zoom and 16x digital zoom
		300 preset positions
		Auto-Tracking
		Pre-set tour
31.	Security	Password Protection, IP Address filtering, User Access Log, HTTPS encryption, IEEE 802.1X network access control
32.	Intelligent Video	Motion Detection, Camera Tampering, Loitering, Line crossing, Intrusion, Human & Vehicle detection and Auto Tracking
33.	Event Trigger	Camera tampering detection, digital input, manual trigger, motion detection, SD card full
34.	Event Action	Event notification via digital output, email, HTTP, FTP, SD card File upload via email, HTTP, FTP, SD card Move to preset
35.	Power	PoE+ IEEE 802.3at/PoE++ IEEE 802.3bt and 12VDC/24AC/24VDC/36VDC
General		
36.	Working Temperature/ Humidity	0°C to 60 °C, 10-95% RH
37.	IP Rating	IP66/IP67, IK10, NEMA 4X or higher
38.	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP

39.	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
40.	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

10. 5MP Box Camera

Sr. No.	Specification Name	Bid Requirement
1	Image Sensor Type	Progressive Scan Sony CMOS Sensor
2	Image Sensor Size	0.357 or better
3	Camera Image Sensing capacity (Picture Mode)	5MP or Higher
4	Resolution	5MP (2560 X 1920/ 2592 X 1944), Full HD (1920 X 1080 Pixel), HD (1280 X 720 Pixel) or better
5	Day::Night Capable	Yes
6	IR illumination Range(mtr)	External IR based on the requirement
7	Focal Length(mm)	2.8~12mm/ 3~10mm/ 8~40mm/ 5~50mm C/CS Mount lens
8	Frame Rate (FPS)	50/60 FPS
9	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)
10	Video Streaming	Triple Compressed simultaneous Stream The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile should have its own compression resolution, frame rate and quality independently. Should support minimum 1st stream at 5MP and 2 nd Stream at 720P or better.
11	Audio Support	Yes
12	Audio Streaming	Two-Way
13	Number of Audio Input Channel	1
14	Number of Audio Output Channel	1
15	Alarm Support	Yes
16	Number of Alarm Digital Input	1
17	Number of Alarm Relay Output	1
18	Pre/Post Alarm Buffer	Yes
19	Minimum Illumination for Capturing Color Image (L)	0.005 lux @ F1.6 or Better
20	WDR (Wide Dynamic Range)	120 DB
21	SNR (Signal to Noise Ratio)	50-60
22	On Board SD Card Support	Yes (Up to 256 GB)
23	SD Card Memory(GB)	32GB

24	SD Card Type	SDXC Class 10, 1 or latest higher version
25	SD Card Speed	Minimum 10 Mbps
26	Protocol	IPv4, IPv6, ICMP, TCP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T.
27	Installation Type	Indoor & Outdoor
28	Material of the Housing construction	Aluminum
29	Protection	IP67, IK 10 & NEMA-4X rated housing
30	Mounting bracket	Wall Mounted
31	Power Input	PoE IEEE 802.3af/ PoE+ IEEE 802.3at and 12VDC/24AC/24VDC
32	Warranty (A)	5 years
33	Time for Replacement of Defective Product During Warranty Period (H)	72
34	BIS Registration for safety general requirements as per IS 13252 (Part 1):latest	Yes
35	Lens Type	Varifocal, C/CS Mount Lens with Remote Focus
36	Type of Camera Housing	Box Camera
37	IP Camera	Yes
38	PTZ Camera	No
39	Pan Speed (deg::Sec)	NA
40	Digital Zoom	12X or better
41	Tilt Speed (deg::Sec)	NA
42	ONVIF Support	Yes, ONVIF Profile S, G, T.
43	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
44	Edge Storage Sync	In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
45	Cyber Security	The cameras offered must be cyber security certified with UL Cyber security certificate/ GDPR/ NIST/ TPM/ Cybersecurity Chipset/ Any other cyber security certificate from Indian Government body or Cert-in Empanelled lab for mitigating cyber security risk.
46	Undertaking	Undertaking required from OEM: 1. No support and use of GB/T 28181 protocol. 2. The cameras offered must be NDAA compliant. 3. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 4. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.

11. 2MP Motorized LPR Bullet Camera

Sr. No.	Specification Name	Bid Requirement
1	Video Compression	H.265, H.264 (The camera OEM Should be a genuine manufacturer and should be an official valid H.265 HEVC licensee and should be listed on HEVC website at the time of submitting bid.)

2	Video Resolution	1920×1080 or better
3	Frame rate	1920×1080 @ 60 FPS
4	Operating frequency	50 Hz
5	Image Sensor	1/2.8" Progressive scan CMOS or better
6	Lens Type	Varifocal Motorized with Remote Focus & Zoom
7	Lens	5 ~ 60 mm
8	Electronic Shutter	1/5 to 1 / 50,000 s or better
9	Multiple Streams	The Camera shall be able to set up and stream out minimum three (3) stream profiles simultaneously. Each stream profile can have its own compression resolution, frame rate and quality independently. Should support minimum two (2) streams at 2 Mega Pixel.
10	Minimum Illumination	Color mode: 0.005 lux @ F1.6 or better B/W: 0 lux with IR illumination on
11	Day/Night Mode	Day / Night / Schedule / Customize / Auto
12	S/N Ratio	≥ 55 dB
13	Auto adjustment + Remote Control of Image settings	Brightness, Sharpness, Contrast, White Balance, Backlight Compensation, Gain Control, 3DNR, HLC, Defog, ROI, Scheduled Profile Settings & Video Title and Time Stamp Overlay
14	Wide Dynamic Range	Minimum 120 dB
15	Privacy Masks	Minimum 8 regions
16	Audio	Full duplex, line in and line out, G.711/ G.726, External microphone input, External line output
17	Local storage	Minimum 32 GB and should support up to 256GB. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server.
18	Protocol	IPv4, IPv6, ICMP, TCP/IP, UDP, DHCP, PPPoE, RTP/RTSP/RTCP, RTMP, DNS, DDNS, NTP, FTP, UPnP, HTTP, HTTPS, SMTP, 802.1x, SNMP, Multicast, SSL/TLS1.2, ONVIF Profile S, G, T, SIP, Bonjour, VLAN
19	Security	Password Protection, IP Address filtering, User Access Log
20	Built in camera Intelligent Video Identification	Number plate capturing with color, Vehicle Identification & Classification including Brand, Type & Color, capture No License Plate Vehicle, Speed & Direction of Vehicle, monitoring the Traffic Flow
21	Traffic Control	Counting Vehicles based on Vehicles, Lane Management,
22	Lane coverage	Minimum 3 lanes
23	Vehicle Speed detection	Max. 200 km/h
24	Accuracy	95% or better
25	Alarm Trigger	Motion Detection, IP Conflict, Attributes Event, White/Black List, External Input, Audio Alarm
26	Alarm Action	FTP & SMTP Upload, HTTP Notification, SD Card Record, External Output
27	Alarm I/O	Minimum 1 Input & 1 Output contact for 3rd party interface
28	Interface	RJ 45, 100 Base TX
29	Operating conditions	As per city Ambient conditions in all seasons
30	Humidity	Humidity 10-95% RH (condensing)
31	Casing	IP66/IP67, IK10, NEMA 4X or higher
32	Power	PoE IEEE 802.3af/ PoE+ IEEE 802.3at and 12VDC/24AC/24VDC
33	IR illuminator	Internal IR Illuminator with minimum range of 30 meters based upon requirement of site/focus/area of interest.
34	Certification	FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard, BIS. Note: In case of Make in India Product UL certification is not required. However, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP
35	Undertaking	Undertaking required from OEM:

	1. No support and use of GB/T 28181 protocol. 2. The MAC ID's of the CCTV Cameras to be supplied against this tender shall be registered in the name of the OEM of the CCTV Cameras. 3. The OEM of CCTV Camera should be a member of ONVIF and quoted models should be listed on official website of ONVIF. The CCTV OEM should not be suspended/ blacklisted by ONVIF.
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12. IR Illuminator

Sr. No.	Parameter	Min. Requirement
1	Type	High efficiency ultimate LED technology (Covert IR Wavelengths: 850 nm or 940 nm)
2	Distance	Upto 95-100 m
3	Construction	Rugged Weatherproof, IP 66 or better
4	Power	Input Power 230 VAC/POE++
5	Other feature	Automatic On/Off facility Beam pattern up to 60 Deg or better
6	Certification	CE, FCC & Eye Safety

13. Joystick

Sr. No.	Parameter	Minimum Specification
1	General	IP Based Control Board with auto search support
2		LCD/LED screen display
3		Joystick
4		Network Protocol: IPv4, TCP/IP, ONVIF
5		Network interface: 1x RJ45 10M/100M
6		Should support PAN, Tilt, Zoom, Focus & other functions
7		Minimum 20 programmable buttons
8		Power Supply: DC12V $\pm$ 10%
9		Working Temperature: 0°C to +50°C
10		Working Humidity: 20% to 80%
11		Certificates: CE & FCC

14. 8Ch Embedded Network Video Recorder with 2 SATA Interfaces

Sr. No.	Specification
1	8 Channels or better NVR with supports up to 2 SATA hard drives each support up to 10TB, should be loaded with 8 TB Capacity of HDDs.
2	Support 4K streaming, Support 8 Channel up to (3840*2160) Resolution Support 80 Mbps of incoming Bandwidth and support USB 2.0 ports.
3	Support H.264 and H.265
4	1# of Gigabit port
5	Support ONVIF Profile S, G, T and above cameras, should support Remote live view and remote playback
6	VGA and HDMI, 2 nos. of USB port, should support Network & USB data backup
7	Should support 4 in & 1 out Alarm interfaces
8	Should support 8 Channels streaming in Single screen and 8 Channels synchronous Playback
9	Should support ANR and Pre/Post recording
10	Should support LPR with OCR report generation

11	Certification- FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/equivalent Indian Standard, BIS certified at the time of bidding. The OEM should have ISO 9001:2008 or latest and ISO 14001:2004 or latest certificate for Manufacturing. In case of Make in India Product UL certification is not required, however, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP.
12	Operating Temperature: 0-50 °C, should be Rack mounted
13	NVR Should be capable of recording both Audio and Video.
14	The storage taken above is indicative. Bidder has to ensure that the proposed NVR is capable of storing 1 month's video and audio footage. In case there is the requirement of more storage bidder will arrange at no extra cost to tenderer

15. 16 Channel NVR with 8 SATA Interface

Sr. No.	Specification
1	16 Channels or better NVR with supports up to 8 SATA hard drives each support up to 10TB, should be loaded with 16 TB Capacity of HDDs.
2	Support 4K streaming, Support 16 Channel up to (3840*2160) Resolution Support 160 Mbps of incoming Bandwidth and support USB 2.0 ports.
3	Support H.264 and H.265
4	1# of Gigabit port
5	Support ONVIF Profile S, G, T and above cameras, should support Remote live view and remote playback
6	VGA and HDMI, 2 nos. of USB port, should support Network & USB data backup
7	Should support 4 in & 1 out Alarm interfaces
8	Should support 8 Channels streaming in Single screen @ 1080P and 8 Channels synchronous Playback @ 1080P
9	Should support ANR and Pre/Post recording
10	Certification- FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/equivalent Indian Standard, BIS certified at the time of bidding. The OEM should have ISO 9001:2008 or latest and ISO 14001:2004 or latest certificate for Manufacturing. In case of Make in India Product UL certification is not required, however, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP.
11	Operating Temperature: 0-50 °C, should be Rack mounted
12	NVR Should be capable of recording both Audio and Video.
13	The storage taken above is indicative. Bidder has to ensure that the proposed NVR is capable of storing 1 month's video and audio footage. In case there is the requirement of more storage bidder will arrange at no extra cost to tenderer

16. 32 Channel NVR with 8 SATA Interface

Sr. No.	Specification
1	32 Channels or better NVR with supports up to 8 SATA hard drives each support up to 10TB, should be loaded with 32 TB Capacity of HDDs. Should support RAID 0/1/5/6/10.
2	Support 4K streaming, Support 32 Channel up to (3840*2160) Resolution Support 320 Mbps of incoming Bandwidth and support USB 2.0 & 3.0 ports.
3	Support H.264 and H.265
4	2# of Gigabit port with load balancing and failover
5	Support ONVIF Profile S, G, T and above cameras, should support Remote live view and remote playback
6	VGA and HDMI, 2 nos. of USB port, should support Network & USB data backup

7	Should support 16 in & 4 out Alarm interfaces and 2 serial interfaces (RS232/RS485)
8	Should support 16 Channels streaming in Single screen @ 1080P and 16 Channels synchronous Playback @ 1080P
9	Should support ANR and Pre/Post recording
10	Certification- FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/equivalent Indian Standard, BIS certified at the time of bidding. The OEM should have ISO 9001:2008 or latest and ISO 14001:2004 or latest certificate for Manufacturing. In case of Make in India Product UL certification is not required, however, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP.
11	Operating Temperature: 0-50 °C, should be Rack mounted
12	NVR Should be capable of recording both Audio and Video.
13	The storage taken above is indicative. Bidder has to ensure that the proposed NVR is capable of storing 1 month's video and audio footage. In case there is the requirement of more storage bidder will arrange at no extra cost to tenderer

17. 64 Channel NVR with 8 SATA Interface

Sr. No.	Specification
1	64 Channels or better NVR with supports up to 8 SATA hard drives each support up to 10TB, should be loaded with 64 TB Capacity of HDDs. Should support RAID 0/1/5/6/10.
2	Support 4K streaming, Support 64 Channel up to (3840*2160) Resolution Support 320 Mbps of incoming Bandwidth and support USB 2.0 & 3.0 ports.
3	Support H.264 and H.265
4	2# of Gigabit port with load balancing and failover
5	Support ONVIF Profile S, G, T and above cameras, should support Remote live view and remote playback
6	VGA and HDMI, 2 nos. of USB port, 1 no. e-SATA port, should support Network, USB & e-SATA data backup
7	Should support 16 in & 4 out Alarm interfaces and 2 serial interfaces (RS232/RS485)
8	Should support 16 Channels streaming in Single screen @ 1080P and 16 Channels synchronous Playback @ 1080P
9	Should support ANR and Pre/Post recording
10	Certification- FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/equivalent Indian Standard, BIS certified at the time of bidding. The OEM should have ISO 9001:2008 or latest and ISO 14001:2004 or latest certificate for Manufacturing. In case of Make in India Product UL certification is not required, however, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP.
11	Operating Temperature: 0-50 °C, should be Rack mounted
12	NVR Should be capable of recording both Audio and Video.
13	The storage taken above is indicative. Bidder has to ensure that the proposed NVR is capable of storing 1 month's video and audio footage. In case there is the requirement of more storage bidder will arrange at no extra cost to tenderer

18. 128 Channel NVR with 16 SATA Interface

Sr. No.	Specification
1	128 Channels or better NVR with supports up to 16 SATA hard drives each support up to 10TB, should be loaded with 80 TB Capacity of HDDs. Should support RAID 0/1/5/6/10.
2	Support 4K streaming, Support 128 Channel up to (3840*2160) Resolution Support 400 Mbps of incoming Bandwidth and support USB 2.0 & 3.0 ports.
3	Support H.264 and H.265

4	2# of Gigabit port with load balancing and failover
5	Support ONVIF Profile S, G, T and above cameras, should support Remote live view and remote playback
6	VGA and HDMI, 2 nos. of USB port, 1 no. e-SATA port, should support Network, USB & e-SATA data backup
7	Should support 16 in & 4 out Alarm interfaces and 2 serial interfaces (RS232/RS485)
8	Should support 16 Channels streaming in Single screen @ 1080P and 16 Channels synchronous Playback @ 1080P
9	Should support ANR and Pre/Post recording
10	Certification- FCC/ equivalent Indian Standard, CE/equivalent Indian Standard, UL 62368-1/equivalent Indian Standard, BIS certified at the time of bidding. The OEM should have ISO 9001:2008 or latest and ISO 14001:2004 or latest certificate for Manufacturing. In case of Make in India Product UL certification is not required, however, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP.
11	Operating Temperature: 0-50 °C, should be Rack mounted
12	NVR Should be capable of recording both Audio and Video.
13	The storage taken above is indicative. Bidder has to ensure that the proposed NVR is capable of storing 1 month's video and audio footage. In case there is the requirement of more storage bidder will arrange at no extra cost to tenderer

19. 8 Port Network PoE Switch

Sr. No.	Specification
1	Switch Specification - Product offered must have Warranty/Support/Modules/Software/Features Activated from day 1
2	The Switch should have 8 x 10/100/1000Base-T ports + 2 x 1G SFP Ports, Managed Switch. Support IEEE 802.3af/at, 130W Min Power Budget and Up to 30 W power output per PoE port.
3	RJ-45 console port for accessing the command line interface (CLI) of this switch for configuration, management, and monitoring.
4	Switch should be Forwarding mode: store and forward, Switching Capacity: 20Gbps, Packet forwarding rate: 14.88 Mpps and 8K MAC address table with MAC address learning and aging automatically, Static, Dynamic, filter address table Support.
5	The Switch should Support: Min IPv6 Ping, IPv6 Traceroute, IPv6 Telnet.
6	The Switch should have Operation Temperature • 0 to 50 °C (32 to 122 °F)
7	The Switch should support Management features Http & Https, CLI, SNMP V1/V2/V3, LLDP, RMON, Syslog
8	Spanning Tree Support STP (IEEE 802.1d) RSTP (IEEE 802.1w) and MSTP (IEEE 802.1s) protocol, Support loop protection, BPDU protection
9	The Switch should support VLAN, 802.1Q, Support 4K VLAN, GVRP, MAC VLAN, Voice VLAN. Support Packet filtering function, Media Access Control Protocol, Port mirroring, one to one/Many to One.
10	The Switch should support Security features, Password Protection, ARP Protection, IP Sources Protection, DoS Protection, DoS protection, DHCP Snooping, DHCP attack protection, port security, port isolation, Radius and Tacacs+, LLDP, HTTPS, SSL, TLS, SSHv1/v2, IP-MAC-Port, 802.1X AAA.
11	The Switch should support Multicast features, IGMP v1/v2/v3 Snooping, IGMP Fast Leave, IGMP Querier. Multicast group policy and multicast number limit
12	The Switch should Support Traffic classification of each field of L2/L3/L4 protocol headers, CAR traffic Control, 802.1P/DSCP priority remark, Multiple queuing algorithms such as SP, WRR or SP+WRR, WRED/WFQ, Traffic Policing and Traffic Shaping.
13	Switch should be supplied with the all necessary components like Power supply, Power cord, All Fan Module, Rack-mount kit, Installation Guide, etc. and necessary software image file to fulfil all above mention feature set from day 1.

20. 8 Port Network Industrial Grade PoE Switch

Sr.	Specification
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No.	
1	Switch Specification - Product offered must have Warranty/Support/Modules/Software/Features Activated from day 1
2	Minimum 8 No's of 10/100/1000 Base-Tx PoE / PoE+ ports (Duplex, Full, Half) and 4 x 1GE Uplink port. Should be IPv4 & IPv6 ready from day one. Should have console port and web based GUI for easy management.
3	Switch should provide 240W of PoE budget with support for 802.3at standard. Continuous PoE should Support (switch reboot does not effect PD device power)
4	All ports should have features of auto- negotiate, flow control (802.3x), port based network access control (802.1x), port security, MAC filtering etc. and IGMP snooping v1, v2, v3 supporting min 100 multicast groups.
5	Minimum Switching capacity of 24 Gbps or more and Switch should support 16000 MAC Addresses.
6	Switch should support minimum 8 priority queues, minimum 512 Active VLANs and 4000 VLANs ID's.
7	Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP) and Features of DHCP, DHCP Relay, NTP/SNTP, SNMPv1, v2 & v3, TELNET/ SSH.
8	Switch should support STP, RSTP, MSTP & ERPS for ring protection. Web/SSL, Telnet server/SSH, ping, Simple Network Time Protocol (SNTP), Trivial File Transfer Protocol (TFTP), SNMP, RADIUS, syslog.
9	Port-based and 802.1Q tag-based VLANs, MAC-based VLANs, IP subnet-based VLANs, Protocol-based VLANs, also known as protected ports, with multiple uplinks, Q in Q Vlan.
10	Switch should support L2/L3 ACL for added security and IEEE 1588v2 Precision Time Protocol HW-Based E2E Transparent clock and Port Security to secure the access to a port based on the MAC address of a user's device. Multilevel security on console access to prevent unauthorized users from altering the switch configuration.
11	Switch should have Dual redundant DC power supply inputs 48 to 55 VDC with reverse polarity protection. Dual redundant power supply from Day 1 and Switch should be IP30 and DIN-Rail mount.
12	Operating Temperature: -40° to 70° C Humidity 5%~95%, 55°C (Non-condensing).
13	Switch should be Shock , Vibration & Drop (IEC/MIL-STD), CE, FCC, UL and NEMA-TS2 certified.
14	All Switches and Fiber Modules should be from same OEM, OEM Should be ISO 45001, ISO 27001 and ISO 14001 Certified, OEM Should have Certificate for Industrial Cyber Security Capability (Like - IEC-62443-4-1:2018 or Equivalent).
15	Switch should be supplied with the all necessary components like Power supply, Power cord, Fan Module, Console Cable, Rack-mount kit, Installation Guide, etc. and necessary software image file to fulfil all above mention feature set from day 1.

21. 24 Port Network PoE Switch

Sr. No.	Specification
1	Switch Specification - Product offered must have Warranty/Support/Modules/Software/Features Activated from day 1
2	The Switch should have 24 x PoE 10/100/1000Base-T ports + 4 x 10G SFP+ ports, Managed Switch. Support IEEE 802.3af/at, 370W Min Power Budget and Up to 30 W power output per PoE port.
3	RJ-45 console port for accessing the command line interface (CLI) of this switch for configuration, management, and monitoring.
4	Switch should be Forwarding mode: store and forward, Switching Capacity: 128Gbps, Packet forwarding rate: 95 Mpps and 16K MAC address table with MAC address learning and aging automatically, Static, Dynamic, filter address table Support.
5	The Switch should Support: Min IPv6 Ping, IPv6 Traceroute, IPv6 Telnet, IPv6 SSH, IPv6 SSL
6	The Switch should have Operation Temperature • 0 to 50 °C (32 to 122 °F)
7	The Switch should support for Physical stacking up to 4 units per stack with dedicated Stacking Ports and support long-distance stacking over fiber or VSS with support up to 4 Switches in single stack.
8	The Switch should support Management features Http & Https, CLI, SNMP V1/V2/V3, LLDP, RMON, IP Source protection, Cable Diagnostic, CPU monitor, Memory monitoring, System log, Syslog
9	Spanning Tree Support STP (IEEE 802.1d) RSTP (IEEE 802.1w) and MSTP (IEEE 802.1s) protocol, Support loop protection, BPDU protection

10	The Switch should support Static routing, OSPF, RIP. DHCP Server, Client, Relay, DHCP Snooping, DHCP option 82
11	The Switch should support VLAN, 802.1Q, Support 4K VLAN, GVRP, Port VLAN, Voice VLAN and Private Vlan. Support L2 - L4 Packet filtering function, Media Access Control Protocol, Port mirroring, one to one/Many to One.
12	The Switch should support Security features, Password Protection, ARP Protection, IP Sources Protection, DoS Protection, ICMP-echo, DoS protection, DHCP Snooping, DHCP attack protection, port security, port isolation, LLDP, HTTPS, SSLv3, TLSv1, SSHv1/v2, IP-MAC-Port, 802.1X AAA.
13	The Switch should support Multicast features, IGMP v1/v2/v3 Snooping, Static Multicast, Multicast VLAN, Multicast filtering, Message Statistics, Unknown Multicast Discarding.
14	The Switch should Support 8 port queue, Port Priority, 802.1p priority, DSCP priority and Support SP, WRR Priority scheduling algorithm
15	Switch should be supplied with the all necessary components like Power supply, Power cord, All Fan Module, Rack-mount kit, Installation Guide, etc. and necessary software image file to fulfil all above mention feature set from day 1.

22. 24 Port Network Layer 2 Switch

Sr. No.	Specification
1	Switch Specification - Product offered must have Warranty/Support/Modules/Software/Features Activated from day 1
2	The Switch should have 24 10/100/1000Base-T ports + 4 x 10G SFP+ ports, Managed Switch.
3	RJ-45 console port for accessing the command line interface (CLI) of this switch for configuration, management, and monitoring.
4	Switch should be Forwarding mode: store and forward, Switching Capacity: 128Gbps, Packet forwarding rate: 95 Mpps and 16K MAC address table with MAC address learning and aging automatically, Static, Dynamic, filter address table Support.
5	The Switch should Support: Min IPv6 Ping, IPv6 Traceroute, IPv6 Telnet, IPv6 SSH, IPv6 SSL
6	The Switch should have Operation Temperature • 0 to 50 °C (32 to 122 °F)
7	The Switch should support for Physical stacking up to 4 units per stack with dedicated Stacking Ports and support long-distance stacking over fiber or VSS with support up to 4 Switches in single stack.
8	The Switch should support Management features Http & Https, CLI, SNMP V1/V2/V3, LLDP, RMON, IP Source protection, Cable Diagnostic, CPU monitor, Memory monitoring, System log, Syslog
9	Spanning Tree Support STP (IEEE 802.1d) RSTP (IEEE 802.1w) and MSTP (IEEE 802.1s) protocol, Support loop protection, BPDU protection
10	The Switch should support Static routing, OSPF, RIP. DHCP Server, Client, Relay, DHCP Snooping, DHCP option 82
11	The Switch should support VLAN, 802.1Q, Support 4K VLAN, GVRP, Port VLAN, Voice VLAN and Private Vlan. Support L2 - L4 Packet filtering function, Media Access Control Protocol, Port mirroring, one to one/Many to One.
12	The Switch should support Security features, Password Protection, ARP Protection, IP Sources Protection, DoS Protection, ICMP-echo, DoS protection, DHCP Snooping, DHCP attack protection, port security, port isolation, LLDP, HTTPS, SSLv3, TLSv1, SSHv1/v2, IP-MAC-Port, 802.1X AAA.
13	The Switch should support Multicast features, IGMP v1/v2/v3 Snooping, Static Multicast, Multicast VLAN, Multicast filtering, Message Statistics, Unknown Multicast Discarding.
14	The Switch should Support 8 port queue, Port Priority, 802.1p priority, DSCP priority and Support SP, WRR Priority scheduling algorithm
15	Switch should be supplied with the all necessary components like Power supply, Power cord, All Fan Module, Rack-mount kit, Installation Guide, etc. and necessary software image file to fulfil all above mention feature set from day 1.

23. 24 Port SFP Network Switch

Sr. No.	Specification
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1	Switch Specification - Product offered must have Warranty/Support/Modules/Software/Features Activated from day 1
2	The Core Switch should be high-performance switches that feature high port density, routing, and ultra-low latency, designed to be deployed as TOR switch.
3	Non-Blocking architecture. Switch should be EMI Certificates FCC/VCCI/CE and Safety Certifications cUL/UL.
4	All Functionalities of Switch shall be IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ software.
5	All the specified features/parameters/certifications must be available on the Technical Bid opening date. Features /parameters /certifications proposed to be available in near future / on roadmap shall not be considered.
6	Switch should support VXLAN, 802.1AX Link Aggregation, and 4K VLAN
7	Should support at least 24-port 1G/10G SFP+, 4-port 40G/100G QSFP28 Ports.
8	The switch should be stackable with Physical stacking (With DAC Cable 100G) or VSS or MLAG or Equivalent technology.
9	The Switch have 1.280 Tbps Switching Capacity, and forwarding rate 952Mpps, for Higher switching functionality.
10	Min 4K static VLAN groups and Min 4K VIDs, MAC and 802.1 X based Login must be available, Supports 802.1X NAP, MAC Address based Lockdown and Limited Learning, Port Mirroring, Flow Mirroring, RSPAN mirroring
11	Switch should support STP/MSTP/RSTP and ERPS for support less than 50 Millisecond convergence (G.8032 v1/v2) Protocol support and FlexLink. Switch shall have hardware based forwarding for IPv4 & IPv6.
12	Switch Should Supports OSPFv2/v3, BGP4+, IEEE 802.3ah Ethernet Link OAM, IEEE 802.1ag, ITU-T Y.1731 Service OAM, Multicast VLAN, L3 Multicasting - IGMP v1/v2/v3, IGMP & MLD Snooping, PIM-SM IPv4/IPv6, PIM-DM, MSDP.
13	The switch shall support IPv4 8K and IPv6 4K Routes, VRRP for IPV4 and IPV6. L2/L3/L4 IP based, Source port, destination port, MAC based, AAA using RADIUS must be available, Identity-driven Policy (VLAN/ACL/QoS) Assignment, Guest VLAN
14	Secure Web based management (On https) through NMS or Full featured CLI, TELNET Access, SSH based management (SSH v2). IEEE 802.3ah Ethernet link OAM, IEEE 802.1ag, ITU-T Y.1731
15	Switch should support RJ-45 console port for out-of-band management, CLI, TELNET Access, USB Port, Management Ethernet port - Dedicated OOB port, SNMP V2c and V3, and RMONv1 and RMONv2 Support, support multiple administrator accounts. Each administrator account shall be configurable with the desired level of management privileges.
16	Syslog shall be supported with multiple syslog destinations, Shall support Netflow/IPFIX/sflow for flow exports, Time synchronization using Network time protocol must be available, Config/image upload and download from TFTP/FTP server shall be available.
17	The switch shall have feature of backing up the configuration & restoring a backed- up configuration. Multiple Configuration files must be supported.
18	Switch should be supplied with the all necessary hardware accessories like PSU, FAN, Power cord (full load front-to-back AC PSUs - 2 Min, and 4 front-to back fan modules), Stacking Cable (QSFP28 to QSFP28), Rack-mount bracket, Installation Guide, etc. and necessary software image file to fulfill all above mention feature set from day 1.
19	Power Supply & FAN - Switch should support Internal Hot swappable PSU.
20	Safety certification - The switch shall conform to IEC-60950/CSA-60950/EN-60950/UL-60950 standard for safety requirements of information technology equipment.
21	Environmental conditions- The offered equipment must be able to operate in the following environmental conditions
22	Operating temperature: 0°C to 45 °C and Relative Humidity: 10% to 95% Non-condensing

24. 48 Port Layer 3 Core Switch

1	The switch should be rack mountable with the following ports: 48 x 10-Gig SFP+ and 2 x 40-Gig QSFP+ Ports and 4 x 100G QSFP28 ports.
2	The switch should support minimum 1.92 Tbps Switch Fabric.
3	The switch should support minimum packet forwarding rate of 1440 million packets per second.

4	The switch should support minimum 64K MAC address.
5	The switch should support Physical stacking (VSS) up to 4 switches in single stack
6	The switch should support Ethernet Ring Protection Switching (ERPS).
7	The switch should support Two AC hot-swappable power modules for 1+1 redundancy and load sharing and Four hot-swappable fan trays provide N+1 cooling redundancy. The switch should not undergo reboot (no downtime) while adding/removing of redundant power supply.
8	The switch should support IEEE 802.1Q Virtual Local Area Network (VLAN) (L2 and L3 level) up to 255 Active VLANs and 4094 VLAN ID.
9	It shall support for Automatic Negotiation of link speed and duplex to help minimize the configuration & errors.
10	It shall support edge port in STP/RSTP/MSTP mode.
11	It shall support Port-spanning functionality for measurements using a network analyzer.
12	It shall support 802.1d, 802.1p, 802.1Q, 802.1s, 802.1w, 802.1x, 802.1ab, 802.3ad.
13	It shall support spanning-tree root guard to prevent other edge switches becoming the root bridge.
14	It shall support IGMP v1, v2 & v3 as well as IGMP v1, v2 & v3 snooping.
15	It shall support Link Aggregation Protocol (LACP) and support Max. 32 groups per device, 16 ports per group
16	It shall support configurable Maximum Transmission Unit (MTU) of up to 9K bytes, with a maximum Ethernet frame size of 9K bytes (Jumbo frames) for bridging on Gigabit Ethernet ports.
17	It shall be able to discover the neighboring device of the same vendor giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems. It shall support LLDP or LLDP-MED for network discovery.
18	It shall support Multicast VLAN registration.
19	It shall Support Optical Transceiver Digital Diagnostic Monitoring and Support link layer remote loopback and discovery, Loopback Detection (LBD) and Switch should support layer remote loopback and discovery or any other industry equivalent protocol.
20	The switch should support HSRP/VRRP.
21	The switch should support IP unicast routing protocols (static, RIPv1/v2, and OSPF). It shall support IP unicast routing for full layer3 routing between 2 or more VLANs.
22	It shall support for Border Gateway Protocol (BGP, BGP4+).
23	It shall support Policy-Based Routing (PBR). Bidirectional Forwarding Detection (BFD).
24	It shall support for IP unicast routing capability (static, RIPv1, RIPv2 and OSPFv3 protocols) to forward IP traffic through configured interfaces.
25	It shall support for Protocol Independent Multicast (PIM-DM/SM for IPv4/IPv6) for IP Multicast routing.
26	It shall support for Multicast VLAN registration (MVR) to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.
27	The switch should support IPv6 routing in hardware including RIPng, and RFC2740 for OSPF for IPv6.
28	The switch should support classification and scheduling as per IEEE 802.1P on all ports. It shall support classification and marking based on IP type of Service (TOS) and DSCP.
29	It shall have supports QoS Flow Actions, Remark 802.1p priority tag, Remark ToS/DSCP tag and Committed Information Rate (CIR).
30	There shall be no performance penalty for highly granular QoS functions.
31	There shall be Weighted Random Early Detection (WRED) to provide congestion avoidance or other industry standard protocol.
32	It shall support strict priority queuing mechanisms.
33	Granular Rate Limiting function to guarantee bandwidth in increments shall be as low as 64 kbps.
34	It shall have supports L2/L3/L4 QoS/CoS solutions help ensure that critical network services such as VoIP, ERP, Intranet, and video conferencing are served with proper priority.
35	It shall support QoS configuration on per switch port basis.
36	The switch should support IEEE 802.1x to allow dynamic, port-based security, providing user authentication.

37	It shall support VLAN ACLs (VACLs) on all VLANs to prevent unauthorized data flows from being bridged within VLANs. It shall also support port-based ACLs (PACLs) for Layer 2 interfaces to allow application of security policies on individual switch ports.
38	It shall support MAC Address based filters / Access Control Lists (ACLs) on all switch ports. Shall support Filters/ACLs based on Network Address, Mask, Protocol Type.
39	It shall support unicast MAC filtering to prevent the forwarding of any type of packet with a matching MAC address. Switch shall support per port broadcast, multicast & unicast storm control to prevent degradation of overall system performance occurred due to faulty end equipment.
40	It shall have support for SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet, SSH and SNMP sessions.
41	It shall support private VLAN to provide security and isolation between switch ports to ensure that users cannot snoop on other users' traffic.
42	It shall support Port Mirroring based on port basis to support intrusion prevention system deployment in different VLANs.
43	It shall support dynamic Arp and DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses. This can be used to prevent attacks that attempt to poison the DHCP binding database.
44	IP source guard shall be available to prevent a malicious user from spoofing or taking over another user's IP address by creating a binding table between client's IP and MAC address, port, and VLAN.
45	It shall support DHCP Interface Tracker (Option 82) to augment a host IP address request with the switch port ID.
46	It shall support multilevel security on console access to prevent unauthorized users from altering the switch configuration.
47	It shall support spanning-Tree Root Guard (STRG) to prevent edge devices not in the network administrator's control from becoming Spanning Tree Protocol root nodes or any other industry standard method/protocol.
48	It shall have support for min. 2000 access control entries (ACEs).
49	It shall support Trivial File Transfer Protocol (TFTP) / File Transfers Protocol (FTP) to reduce the cost of administering software upgrades by downloading from a centralized location.
50	It shall support Simple Network Timing Protocol (SNTP) / Network Timing Protocol (NTP) to provide an accurate and consistent time stamp to all intranet switches.
51	It shall have a console port with RS-232/RJ-45 interface for configuration & diagnostic purpose.
52	It shall support Telnet & SSH V-2 for command line management.
53	It shall support System & Event logging function as well as forwarding these logs onto a separate server for log management.
54	The Core Switch shall support online software reconfiguration to implement changes without rebooting. For any changes in configuration of switches related to L-2 & 3 functions, VLAN, STP, Security, QoS or firmware, rebooting the switch may be allowed.
55	It shall support multiple privilege levels to provide different levels of access on console port & telnet sessions.
56	OEM Should be ISO 45001, ISO 27001 and ISO 14001 Certified, OEM Should have Certificate for Industrial Cyber Security Capability (Like - IEC-62443-4-1:2018 or Equivalent), All Switch and Fiber Modules should be from Same OEM.
57	Switch should be supplied with the all necessary components like Two Power supply, Two Power cord, All Fan Module, Console Cable, Rack-mount kit, Installation Guide, etc. and necessary software image file to fulfil all above mention feature set from day 1.

25. 24 Port Layer 3 Gigabit Modular Switch

1	Minimum 4 10G SFP+ Ports, 16 100/1000 Base-X SFP Ports and 8 100/1000 Base-T ports Interface with Dual power input for redundant power supplies.
2	All ports should have features of auto- negotiate, flow control (802.3x), port based network access control (802.1x), port security, MAC filtering etc.
3	Minimum Switching capacity of 128 Gbps or more.
4	Switch should support minimum 8 priority queues.
5	Switch should support minimum 512 VLANs and 4000 VLANs ID's.

6	Switch should support 16000 MAC Addresses.
7	Should be IPv4 and IPv6 ready from day one.
8	Should have Support MLD and Static IGMP Groups: 128, Dynamic IGMP Groups: 256.
9	Switch should support DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, NTP/SNTP, SNMPv1, v2 & v3, TELNET/ SSH.
10	Should have console port and web based GUI for easy management.
11	Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP).
12	Port Security to secure the access to a port based on the MAC address of a user's device.
13	Multilevel security on console access to prevent unauthorized users from altering the switch configuration.
14	Switch should support ITU-T G.8032 ERPS Ring, STP, RSTP, MSTP, Compatible Ring/Chain, U-Ring, MRP Client and Manager.
15	Port-based and 802.1Q tag-based VLANs, MAC-based VLANs, IP subnet-based VLANs, Protocol-based VLANs, also known as protected ports, with multiple uplinks, Q in Q Vlan.
16	Switch should support Layer 3 Routing Protocols: IPv4/IPv6 Static Routing, RIP V1, V2 and OSPF.
17	Switch should support HSRP/VRRP.
18	Switch should support L2/L3 ACL for added security.
19	Web/SSL, Telnet server/SSH, ping, Simple Network Time Protocol (SNTP), Trivial File Transfer Protocol (TFTP), SNMP, RADIUS, TACACS+ and syslog.
20	Switch should have Dual redundant power supply
21	Switch should support IEEE 802.1ae for MAC security (MACsec) in future if required
22	Operating Temperature : -40°C~70°C (-4°F~158°F)
23	Switch should be UL certified.
24	Switch should support Automation Profiles: Profinet v2.33 CC-B conformance, Modbus/TCP status registers. Precision Network Synchronization: IEEE1588v1 OC/BC (Software), IEEE1588v2 E2E TC (Hardware), IEEE1588v2 OC/BC (Software). Housing: IP30 SPCC metal housing
25	OEM Should be ISO 45001, ISO 27001 and ISO 14001 Certified, OEM Should have Certificate for Industrial Cyber Security Capability (Like - IEC-62443-4-1:2018 or Equivalent), All Switch and Fiber Modules should be from Same OEM.
26	Switch should be supplied with the all necessary components like Two Power supply, Two Power cord, All Fan Module, Console Cable, Rack-mount kit, Installation Guide, etc. and necessary software image file to fulfil all above mention feature set from day 1.

26. MiniGBIC Transceiver 1G

Sr. No.	Specification
1	Description: 1000 BaseLX Single Mode 10KM SFP Transceiver
2	Fiber Module should be Hot Pluggable, MSA Compliant and RoHS Compliant
3	Wavelength: 1310 nm
4	Fiber Module should support 10KM Distance
5	Operation Temperature: -40°C to 85°C for Industrial Grade Switch

27. MiniGBIC Transceiver 10G

Sr. No.	Specification
1	Description: IEEE-802.3ae 10GBASE-LR Single Mode 10KM SFP+ Transceiver
2	Fiber Module should be Hot Pluggable, MSA Compliant and RoHS Compliant
3	Wavelength: 1310 nm
4	Fiber Module should support 10KM Distance

28. MiniGBIC Transceiver 1G – 80KM

Sr. No.	Specification
1	Description: 1000 BaseLX Single Mode 10KM SFP Transceiver
2	Fiber Module should be Hot Pluggable, MSA Compliant and RoHS Compliant
3	Wavelength: 1310 nm
4	Fiber Module should support 80KM Distance
5	Operation Temperature: -40°C to 85°C for Industrial Grade Switch

29. MiniGBIC Transceiver 10G – 80KM

Sr. No.	Specification
1	Description: IEEE-802.3ae 10GBASE-LR Single Mode 10KM SFP+ Transceiver
2	Fiber Module should be Hot Pluggable, MSA Compliant and RoHS Compliant
3	Wavelength: 1310 nm
4	Fiber Module should support 80KM Distance

30. 9 U Rack including required accessories, power strip and dressing. (Networking/Server Rack)

Sr. No.	Specification	
1	Size of Server Rack Enclosure	9U
2	Warranty (Years)	5
3	Type of Server Racks	Rack Enclosures
	Additional Specification Parameters	
4	Bidder has to supply the wall mount 9U rack with 600VA Line Interactive UPS with 10-15min. Backup & Size should be capable to kept the proposed hardware to be kept in the rack	

31. 9 U Outdoor Rack including required accessories, power strip and dressing. (Networking/Server Rack)

Sr. No.	Specification	
1	Size of Server Rack Enclosure	9U
2	Warranty (Years)	5
3	Type of Server Racks	Outdoor Rack Enclosures IP55 Rated
	Additional Specification Parameters	
4	Bidder has to supply the wall mount 9U outdoor rack & Size should be capable to kept the proposed hardware to be kept in the rack	

32. 12 U Rack including required accessories, power strip and dressing. (Networking/Server Rack)

Sr. No.	Specification	
1	Size of Server Rack Enclosure	12U
2	Warranty (Years)	5
3	Type of Server Racks	Rack Enclosures
	Additional Specification Parameters	
4	Surge Protector Power Strip should be Supply along with Rack and Accessories	

33. 24 U Rack including required accessories, power strip and dressing. (Networking/Server Rack)

Sr. No.	Specification	
1	Size of Server Rack Enclosure	24 U
2	Warranty (Years)	5
3	Type of Server Racks	Rack Enclosures
Additional Specification Parameters		
4	Bidder has to supply the 24 U rack with floor standing & Size should be capable to keep the proposed hardware to be kept in the rack.	

34. 42 U Rack including required accessories, power strip and dressing. (Networking/Server Rack)

Sr. No.	Specification	
1	Size of Server Rack Enclosure	42U
2	Warranty (Years)	5
3	Type of Server Racks	Rack Enclosures
Additional Specification Parameters		
4	Bidder has to supply the 42 U rack with floor standing & Size should be capable to keep the proposed hardware to be kept in the rack.	

35. 42U Cooling Rack with required UPS power

Sr. No	Specification
	• Cooling Rack shall be rigid multi fold welded construction with steel frame architecture, should be made of 1.5 mm thickness for the better strength and sturdiness. 1.5 mm thickness for the better strength and sturdiness. • Cooling Rack shall Minimum width of 800 mm depth of 1200mm & 42U usable height. • Cooling Rack should be IP 54 or 55 Approved design. • Vandal proof design. Inside of the Cabinet should not get an access without opening the Door lock with key. • Cooling Rack/cabinet should be provided with thermal insulation. • Front and rear steel door, provided with 3point handle security lock with unique /common key. • Pad lock arrangement for secondary locking arrangement. • Depth wise reversible 19" angles with U marking screen printed in Black color provided for equipment mounting • 10 Nos. of Metallic cable loops shall be provided for routing the cables. • Bidder has to consider 5/15Amp Indian Socket Power distribution Unit with 16 Amp MCB, and vertical 32A, Single Phase, C13 Sockets and C19 Sockets PDU with 32A MCB. The asked PDU is indicative requirement within rack. However, bidder has to propose PDU as per their propose solutions. • PU Molded non removable gasket arrangement provided at door on sealing of dust & water • Rack/Cabinet shall be provided with split type yellow /green earthing leads for earth continuity. • Pure Polyester Nano Ceramic Powder coating. • SI/Bidder has to consider the Rack with Energy Efficient Inverter rotary compressor based Precision AC of 7KW. The same shall be Environmental Friendly R410A. The unit shall not occupy usable space of more than 7U height inside the Rack. The outdoor ambient temperature shall be in a range of -20°C ~ + 50°C. The AC should be split type. The IDU-ODU connectivity shall be upto maximum of 20mtr running distance to provide full capacity. Shall be provided with both top & bottom connectivity options. • Compressor should be inverter type for better energy efficiency, with HMI screen management for temperature, humidity, leakage, smoke and critical parameters status. • Rear Door automatic opening system shall be provided for the emergency or event of cooling failure, unavailability of electricity or overheat above the standard threshold limits. Also acoustic alarm and visual indication should be provided. • Data Center cooling rack should be supplied with required UPS power backup. The UPS Should be rack

	mountable minimum 6KVA or higher capacity considering to bear the actual induction load of all the equipment installed under the rack (like server, storage, etc.) for Minimum 1 Hour backup with full load.
	• Bidder has to submit actual Rack space, cooling, UPS power load calculations for each location. • UPS should be rack mounted and Batteries should be placed outside the rack on separate battery rack
	• Location wise placement of 42U Cooling rack vary, distance between Indoor unit and Outdoor unit may vary and goes up to 30 meters so please consider piping distance along with Civil, Electrical and GI cable tray accordingly. It is preferable vertical mount and lowest foot print of cooling unit to get maximum usable space within the rack.
	Cooling Racks should be manufactured by ISO9001:2008, ISO14001:2004 & ISO 45001:2018, ISO 50001:2018 (Certificate to be enclosed along with the compliance) Certified company and should have proper EHS Policy.

36. 1 KVA UPS ONLINE UPS, Single Phase Input, Single Phase output and 30 Min. Battery Backup

Sr. No	Parameter	Description
1	UPS Rating	1 KVA True online UPS
2	Type	Online Double Conversion UPS
3	Mounting	Tower type
4	Output Power Capacity	1000 VA
5	Input Power Factor	0.99 at full load
6	Nominal Input Voltage	230V
7	Input Voltage range	160V -300 VAC at full load 110V - 300 VAC < 60% load
8	Input Frequency	50/60 Hz +/-5 Hz (auto sensing)
9	Output KW	800 W
10	Output Voltage Distortion on linear load	<3%
11	Output Voltage Distortion on non linear load	<5%
12	Output voltage regulation	230V +1%
13	Wave Form Type	Pure Sinewave
14	Crest Factor	3:1
15	Over voltage cut off Device	Required inbuilt
16	Inbuilt Surge protection	Required
17	Eco Mode	Required
18	Battery Rack & Interlinks	Supply of suitable, industry standard stand for installation & interlinks for battery connection
19	Battery Make	Exide/ Amara Raja Quanta
20	Minimum Backup time on full load	30 minutes
21	Minimum VAH	1008 (12 v x Battery AH x Nos. of batteries)
22	Battery Charger Capacity	Required 10% of Battery AH
23	Temperature Compensated battery charger	Required
24	Conformal Coating	PCB conformal coating required
25	Operating Environment	0 - 40 °C
26	Protection	Short circuit, Over temperature, DC low/High, Overload
27	Certification	BIS, ROHS, CE required
28	EMC	EN 62040 -2
29	Safety	IEC 62040 -1
30	Performance	IEC 62040 -3
31	Static Bypass	Inbuilt required
32	Communication	Required RS 232 & USB Com port
33	Enclosure	IP 20
34	UPS Warranty	5 years

35	Battery Warranty	1 year
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37. 3 KVA UPS ONLINE UPS, Single Phase Input, Single Phase output and 30 Min. Battery Backup

Sr. No	Parameter	Description
1	UPS Rating	3 KVA True online UPS
2	Type	Online Double Conversion UPS
3	Mounting	Tower type
4	Output Power Capacity	3000 VA
5	Input Power Factor	0.99 at full load
6	Nominal Input Voltage	230V
7	Input Voltage range	160V -300 VAC at full load 110V - 300 VAC < 60% load
8	Input Frequency	50/60 Hz +/-5 Hz (auto sensing)
9	Output KW	2400 W
10	Output Voltage Distortion on linear load	<3%
11	Output Voltage Distortion on non linear load	<5%
12	Output voltage regulation	230V +1%
13	Wave Form Type	Pure Sinewave
14	Crest Factor	3:1
15	Over voltage cut off Device	Required inbuilt
16	Inbuilt Surge protection	Required
17	Eco Mode	Required
18	Battery Rack & Interlinks	Supply of suitable, industry standard stand for installation & interlinks for battery connection
19	Battery Make	Exide/ Amararaja Quanta
20	Minimum Backup time on full load	30 minutes
21	Minimum VAH	2688 (12 v x Battery AH x Nos. of batteries)
22	Battery Charger Capacity	Required 10% of Battery AH
23	Temperature Compensated battery charger	Required
24	Conformal Coating	PCB conformal coating required
25	Operating Environment	0 - 40 °C
26	Protection	Short circuit, Over temperature, DC low/High, Overload
27	Certification	BIS, ROHS, CE required
28	EMC	EN 62040 -2
29	Safety	IEC 62040 -1
30	Performance	IEC 62040 -3
31	Static Bypass	Inbuilt required
32	Communication	Required RS 232 & USB Com port
33	Enclosure	IP 20
34	UPS Warranty	5 years
35	Battery Warranty	1 year

38. 5 KVA UPS ONLINE UPS, Single Phase Input, Single Phase output and 30 Min. Battery Backup

Sr. No	Parameter	Description
1	UPS Rating	5 KVA True online UPS

2	Type	Online Double Conversion UPS
3	Mounting	Tower type
4	Output Power Capacity	5000 VA
5	Input Power Factor	0.99 at full load
6	Nominal Input Voltage	230V
7	Input Voltage range	160V -300 VAC at full load 110V - 300 VAC < 60% load
8	Input Frequency	50/60 Hz +/-5 Hz (auto sensing)
9	Output KW	4000 W
10	Output Voltage Distortion on linear load	<3%
11	Output Voltage Distortion on non linear load	<5%
12	Output voltage regulation	230V +1%
13	Wave Form Type	Pure Sinewave
14	Crest Factor	3:1
15	Over voltage cut off Device	Required inbuilt
16	Inbuilt Surge protection	Required
17	EPO	Required
18	Battery Rack & Interlinks	Supply of suitable, industry standard stand for installation & interlinks for battery connection
19	Battery Make	Exide/ Amara Raja Quanta
20	Minimum Backup time on full load	30 minutes
21	Minimum VAH	5376 (12 v x Battery AH x Nos. of batteries)
22	Battery Charger Capacity	Required 10% of Battery AH
23	Temperature Compensated battery charger	Required
24	Conformal Coating	PCB conformal coating required
25	Operating Environment	0 - 40 °C
26	Protection	Short circuit, Over temperature, DC low/High, Overload
27	Certification	BIS, ROHS, CE required
28	EMC	EN 62040 -2
29	Safety	IEC 62040 -1
30	Performance	IEC 62040 -3
31	Static Bypass	Inbuilt required
32	Communication	Required RS 232 & USB Com port
33	Enclosure	IP 20
34	UPS Warranty	5 years
35	Battery Warranty	1 year

39. 20 KVA UPS ONLINE UPS, Three Phase Input, Three Phase output and 30 Min. Battery Backup

Sr. No.	Parameter	Description
1	UPS Rating	20 KVA True online UPS
2	Type	True Online Double Conversation (VFI –SS-III)
3	INPUT Characteristics	
4	Convert /Rectifier Type	IGBT - PFC based
5	Nominal Voltage	380/400/415 VAC 3Ph +N+E
6	Input Voltage Range	320 VAC - 476 VAC
7	Input Frequency Range	50-60Hz +/-10% autosensing
8	Input Power Factor at Full load	≥ 0.99
9	Harmonic distortion (THDi)	≤ 5% at rated load

10	Phase sequence correction	Required inbuilt in UPS Panel & UPS should not go the battery mode incase of input phase reversal
	OUTPUT Characteristics	
11	Inverter Type	IGBT - PWM based
12	Output Voltage	400VAC 3Ph +N+E Settable to 380/400/415 Vac via Display Panel
13	Output Power Factor	Unity
14	Output Voltage Regulation	± 1% (balanced load)
15	Output Frequency (nominal)	50Hz+/- 0.1 Hz 50 Hz/60 Hz/Synch Settable via Display Panel
16	Harmonic distortion (THDv)	≤ 2% with Linear Load ≤ 5% with Non-linear load
17	Crest Factor	3:1
18	Overload Capacity	≤ 110% for 60 min ≤ 125% for 10min ≤150% for 60 Sec
19	Isolation Transformer	Isolation Transformer should be Inbuilt (UPS OEM make)
	BATTERY	
20	Battery type	VRLA SMF Battery
21	Battery Make	Exide/ Amararaj Quanta
22	Back Up time	30 Min backup
23	Minimum VAH	18000 (12 v x Battery AH x Nos. of batteries)
	COMMUNICATION Interface	
24	Standard	RS232, Modbus over RS485
	ENVIRONMENT	
25	Operating Temperature	0 C - 40 C
26	Relative Humidity Range	< 95 % (non-condensing)
27	Noise Level	< 70dB
	General	
28	Display	5" Touch screen LCD Display
29	Protection input & output	Breaker/ isolator required
30	Dust Filter	Required
31	Coating	Conformal coated PCB required
32	Static Bypass	Yes inbuilt
33	Manual Bypass	Yes with Isolator a Make before break arrangement
34	Short Circuit Protection	Fuse & electronics protection for input, output & battery
35	Paralleling for redundancy	UP to 4 units
36	Eco mode	Required
37	Cold Start with battery	Required
	Standard & Certifications	
38	Safety	IEC 62040-1
39	EMC	IEC 62040-2
40	Performance & testing	IEC 62040-3
	Warranty	
41	UPS	5 years
42	Batteries	1 year

40. Surge Protection Device (SPD)

Sr. No	Parameter	Specification
1	Nominal AC voltage	230 V (50-60 Hz)
2	SPD in accordance with - EN 61643-11/IEC 61643-11	Type 2/Class II
3	Max operating AC voltage [L-N]	275 V
4	Max operating voltage [N-PE]	255 V
5	Nominal discharge current	20 kA
6	Max discharge current	40 kA

7	Voltage protection level [L-N]	<1 kV
8	Voltage protection level [N-PE]	<1.5 kV
9	Response time [L-N]	<25 ns
10	Response time [N-PE]	<100 ns
11	Operating temperature range	0-65 C
12	Degree of protection	IP 20 rating
13	Enclosure protection	IEC 60529 or equivalent Indian standard
14	Certification	UL 1449 or equivalent Indian standard
15	Visual Display	LED indicator (Green and Red)
16	Features	Audible Alarm

41. CAT 6 UTP Cable

Sr. No.	Parameter	Specification
1	Type	Unshielded Twisted Pair, Category 6, TIA / EIA 568-C.2 & ISO/IEC 11801
2	Conductors	23 AWG solid bare copper
3	Insulation	High Density Polyethylene
4	Jacket	FR PVC
5	Pair Separator	Cross-member (+) fluted Spline
6	Operating temperature	-10 °C to +65 °C
8	Frequency	Tested up to Minimum 250 MHz
9	Packing Box	305 Meters/Box
10	Cable Outer Diameter	6.3 +/- 0.4 mm
12	Bend Radius	4 * Cable Diameter
13	Impedance	100 Ohms + / - 15 ohms, 1 to 250 MHz
14	Mutual Capacitance	5.6 nF MAX /100 Mtr
15	Conductor Resistance	73 Ohms Max / KM nominal
16	Propagation Delay Skew	35 ns/100 Mtrs. MAX
17	Max. Tensile strength	110N
18	Standard Compliance	ANSI/TIA-568 C.2 category 6, ISO/IEC-11801, Class E/ IEC 61156-5: category 6
19	Application	IEEE 802.af and IEEE 802.3at for PoE
20	Certification	UL, CE, ETL, ETL channel tested

42. CAT 6 UTP Cable - Outdoor

Sr. No.	Parameter	Specification
1	Type	Shielded Foiled Twisted Pair, Category 6, TIA / EIA 568-C.2 & ISO/IEC 11801
2	Conductors	23 AWG solid bare copper
3	Insulation	Polyethylene
4	Inner Shield Material	100% Mylar Tape (AL/PET)
5	Outer shield material	Tinned Copper Braid
6	Inner Jacket Material	PVC
8	Armour	ECCS Tape
9	Outer Jacket Material	LDPE
10	Operating temperature	-20 °C to +60 °C
12	Frequency	Tested up to Minimum 250 MHz
13	Packing Box	305 Meters/Box
14	Cable Outer Diameter	12.6±1.5 mm
15	Bend Radius	15 * Cable Diameter (min)
16	Conductor Resistance	93.8 Ohms Max / KM nominal

17	Performance characteristics	Performance characteristics to be provided along with bid Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR
18	Standard Compliance	ANSI/TIA-568 C.2 category 6, ISO/IEC-11801, Class E/ IEC 61156-5: category 6

43. 8 Port CAT 6 Patch Panel

Sr. No.	Parameter	Specification
1	Material	Powder Coated Steel
2	Ports	08 Port
3	Size	483mm X 44.2mm (1U)
4	Colour	Black
5	Mounting Style	Punch Down (Module)
6	Compatible	Compatible with both T568A and T568B wiring options. Backward compatible with Category 5e cabling standards
7	AWG Support	Supports solid 22-24 AWG wires and stranded 24-26 AWG
8	Connector Module Holder	High Impact, Flame-Retardant Plastic Compound
9	Flammability Rating	UL 94V-0
10	Safety Rating	UL1863
11	Identification	Each port of the panel is numbered and has a designated label area for clear port identification
12	Cable Management	Rear cable management bar which should act as stress reliever for terminated cables
13	Standards Compliance	ISO/IEC 11801 Class E, TIA/EIA-568B.2-1
14	Application	IEEE 802.af, IEEE 802.3at for PoE applications.
15	Certification	UL, CE, ETL Channel Tested
CAT 6 Unshielded Keystone Jack		
16	Material	High Impact, Flame-Retardant Plastic Compound
17	Type	Category 6
18	Insertion/Extraction life	750 cycle minimum
19	Jack Contact Material	50μ Nickel over gold
20	Conductor Compatibility Range	22-26AWG solid cable
21	IDC Type	Dual (110 Or Krone) Type
22	Current rating	1.5A max
23	Insulation resistance	500 M ohm (min)@100 Vdc
24	Contact Resistance	20 M ohm (max) per contact
25	Retention	50N
26	Voltage rating	230 V rms max.
27	Flammability Rating	UL 94V-0
28	Safety Rating	UL1863
29	Colour Coding	As Per 568 A/B Standards
30	Standards Compliance	ANSI/TIA-568-C.2, ISO/IEC-11801, EN50173-2
31	Application	IEEE 802.af, IEEE 802.3at for PoE applications
32	Certification	UL, CE

44. 24 Port CAT 6 Patch Panel

Sr. No.	Parameter	Specification
1	Material	Powder Coated Steel
2	Ports	24 Port
3	Size	483mm X 44.2mm (1U)
4	Colour	Black
5	Mounting Style	Punch Down (Module)

6	Compatible	Compatible with both T568A and T568B wiring options. Backward compatible with Category 5e cabling standards
7	AWG Support	Supports solid 22-24 AWG wires and stranded 24-26 AWG
8	Connector Module Holder	High Impact, Flame-Retardant Plastic Compound
9	Flammability Rating	UL 94V-0
10	Safety Rating	UL1863
11	Identification	Each port of the panel is numbered and has a designated label area for clear port identification
12	Cable Management	Rear cable management bar which should act as stress reliever for terminated cables
13	Standards Compliance	ISO/IEC 11801 Class E, TIA/EIA-568B.2-1
14	Application	IEEE 802.af, IEEE 802.3at for PoE applications.
15	Certification	UL, CE, ETL Channel Tested
CAT 6 Unshielded Keystone Jack		
16	Material	High Impact, Flame-Retardant Plastic Compound
17	Type	Category 6
18	Insertion/Extraction life	750 cycle minimum
19	Jack Contact Material	50μ Nickel over gold
20	Conductor Compatibility Range	22-26AWG solid cable
21	IDC Type	Dual (110 Or Krone) Type
22	Current rating	1.5A max
23	Insulation resistance	500 M ohm (min)@100 Vdc
24	Contact Resistance	20 M ohm (max) per contact
25	Retention	50N
26	Voltage rating	230 V rms max.
27	Flammability Rating	UL 94V-0
28	Safety Rating	UL1863
29	Colour Coding	As Per 568 A/B Standards
30	Standards Compliance	ANSI/TIA-568-C.2, ISO/IEC-11801, EN50173-2
31	Application	IEEE 802.af, IEEE 802.3at for PoE applications
32	Certification	UL, CE

45. Copper / Fiber Hybrid Patch Panel

Sr. No.	Parameter	Specification
1	Type	19" Hybrid Patch panel (copper and Fiber patching in a single 1U panel)
2	Copper Cassette	Category 5E, Category 6, Category 6A – Screened (STP) or Unscreened (UTP) solution
3	Fiber Cassette	24/12 port LC or SC Type & MPO/MTP Solution for SM and MM fibers
4	Outlet Style	Unkeyed RJ-45 (Copper) & LC/SC Type (Fibre)
5	No. of cassette per panel	4
6	No of Ports for Copper Cassette	6 Port (UTP/STP)
7	No of Ports for Fiber Cassette	LC-24 Port /SC 12 Port
8	Cassette material	ABS Plastic
9	Dimensions	44.5*482.6*49.7 mm (H*W*D)
10	Material	SPCC, T=1.4mm/Nickel Black colour
11	Size	1U
12	Standard Compliance	ISO/IEC 11801 Class E, TIA/EIA-568B.2-1, IEC 61754-7, TIA/EIA 604-5 type MPO, TIA/EIA-568-C, IEEE 802.af, IEEE 802.3at for PoE applications

46. Cat 6 UTP Patch Cord, LSZH – 1Mtr

Sr.	Parameter	Specification
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No.		
1	Cable Conductor	Stranded Bare Annealed Copper
2	Wire Insulation	SFS PE
3	Jacket	Low Smoke Zero Halogen (LSZH)
4	Bend Radius	> 23 mm without load
5	Flame Test	IEC 60332-1
6	Gas Emissions testing	IEC 60754
7	Smoke Density Testing	IEC 61034
8	Conductor Resistance	< 73 Ω/km
9	Tensile Strength	96N min
10	Durability	1000 Mating Cycles
11	Propagation Delay	1-250MHz: < 25 ns/100m
12	Current rating	1.0A max
13	Insulation resistance	150 M ohm/km
14	Voltage rating	72 V DC
15	Contact resistance	20 M ohm (max) per contact
16	Length	1 meter
17	Standards Compliance	ANSI/TIA-568-C.2 and ISO/IEC-11801 (2nd Edition), IEC 61156-2, EN 50173; EN 50288-6-2 Category 6 standard
18	Application	IEEE 802.af, IEEE 802.3at for PoE applications
19	Certification	UL, CE, ETL Channel Tested

47. Cat 6 UTP Patch Cord, LSZH – 2Mtr

Sr. No.	Parameter	Specification
1	Cable Conductor	Stranded Bare Annealed Copper
2	Wire Insulation	SFS PE
3	Jacket	Low Smoke Zero Halogen (LSZH)
4	Bend Radius	> 23 mm without load
5	Flame Test	IEC 60332-1
6	Gas Emissions testing	IEC 60754
7	Smoke Density Testing	IEC 61034
8	Conductor Resistance	< 73 Ω/km
9	Tensile Strength	96N min
10	Durability	1000 Mating Cycles
11	Propagation Delay	1-250MHz: < 25 ns/100m
12	Current rating	1.0A max
13	Insulation resistance	150 M ohm/km
14	Voltage rating	72 V DC
15	Contact resistance	20 M ohm (max) per contact
16	Length	2 meter
17	Standards Compliance	ANSI/TIA-568-C.2 and ISO/IEC-11801 (2nd Edition), IEC 61156-2, EN 50173; EN 50288-6-2 Category 6 standard
18	Application	IEEE 802.af, IEEE 802.3at for PoE applications
19	Certification	UL, CE, ETL Channel Tested

48. CAT6 Information Outlet and Face Plate

Sr. No.	Parameter	Specification
1	Type	Single port faceplate as per requirement
2	Material	High Impact Thermoplastic (ABS) UL94V-0 fire retardant

3	Colour	White
4	Dust protection	Spring loaded shuttered Port for Protection
5	Standards Compliance	Conforms to ANSI/TIA/EIA 568A-B.2.2001 standards
CAT 6 Unshielded Keystone Jack		
6	Material	High Impact, Flame-Retardant Plastic Compound
7	Type	Category 6
8	Insertion/Extraction life	750 cycle minimum
9	Jack Contact Material	50μ Nickel over gold
10	Conductor Compatibility Range	22-26AWG solid cable
11	IDC Type	Dual (110 Or Krone) Type
12	Current rating	1.5A max
13	Insulation resistance	500 M ohm (min)@100 Vdc
14	Contact Resistance	20 M ohm (max) per contact
15	Retention	50N
16	Voltage rating	230 V rms max.
17	Flammability Rating	UL 94V-0
18	Safety Rating	UL1863
19	Colour Coding	As Per 568 A/B Standards
20	Standards Compliance	ANSI/TIA-568-C.2, ISO/IEC-11801, EN50173-2
21	Application	IEEE 802.af, IEEE 802.3at for PoE applications
22	Certification	UL, CE

49. 4 core single mode Drop cable

Sl. No.	Parameter	Specification
1	Type	4 core Singlemode G657.A2 OS2 optical Fiber cable
2	Outer Jacket	LSZH : IEC-60332-1-2, IEC-60754-1/2, IEC-61034-1/2, UV Resistance
3	Strength Member	Central FRP Strength Member
4	Cladding Diameter	120 ± 0.5 μm
5	Cable Diameter	3.3 ± 0.3 mm
6	Fiber bend radius	>= 4m
7	Tensile Strength	Short - 100 N as per IEC 60794-1-21 Long - 60 N as per IEC 60794-1-21
8	Crush Load	500 N/100 mm as per IEC 60794-1-21
9	Colour Code	ANSI/TIA/EIA-568C.3
10	Operating temperature	- 20°C to 70°C
11	Installation temperature	- 10°C to 60°C
12	Weight	20 ± 5 kg/km (approx.).
13	Standard Compliance	ITU-T G.652.D / G657.A1 OS2 Fiber, ISO/IEC 11801, ISO/IEC24702, ANSI/TIA/EIA 568C.3,
14	Certification	ROHS compliant Directive 2002/95/EC

50. 6 core single mode fiber cable

Sr. No.	Parameter	Specification
1	Type	6 core OS2 (9/125 micron) Single mode, Loose Tube water blocking jelly, two steel wire as strengthening component , Steel tape armouring, outdoor optical Fiber cable
2	Outer Jacket	HDPE (High Density Polyethylene)

3	Strength Members,	Two Steel wire
4	Armouring	Corrugated Steel tape armouring
5	Moisture Protection	Waterproof Tape
6	Loose Tube construction	Water blocking Jelly
7	Loose Tube Diameter	2.3±0.2 mm
8	Cable Outer Diameter	8.5±0.5 mm
9	Tensile Load	2000 N as per IEC 60794-1-2-E1
10	Crush Load	2000 N/100 mm as per IEC 60794-1-2-E3
11	Colour Code	ANSI/TIA/EIA-598-B
12	Max attenuation	<=0.34 dB per km@1310 nm, <= 0.20 dB per km@ 1550nm
13	Operating temperature	- 20°C to 60°C
14	Weight	90±10 kg/km (approx.).
15	Standard Compliance	ITU-T G.652.D Fiber, ISO/IEC 11801, ISO/IEC24702, ANSIANSI/TIA/EIA 568C.3, IEEE 802.3z Gigabit Ethernet, ROHS compliant Directive 2002/95/EC
16	Certification	CE

51. 12 Core Single mode Outdoor Armoured Fiber Optic Cable

Sr. No.	Parameter	Specification
1	Type	12 core OS2 (9/125 micron) Single mode, Multi-Loose tube water blocking jelly, Central FRP strength member, Steel tape armouring, Outdoor optical Fiber cable
2	Outer Jacket	HDPE (High Density Polyethylene)
3	Strength Member	Central FRP Strength Member
4	Armouring	Corrugated Steel tape armouring
5	Moisture Protection	Waterproof Tape
6	Loose Tube construction	Water blocking Jelly
7	Loose Tube Diameter	2.0 ± 0.5mm
8	Cable Outer Diameter	10.0 ± 0.5mm
9	Tensile Load	3000 N as per IEC 60794-1-2-E1
10	Crush Load	2000 N/100 mm as per IEC 60794-1-2-E3
11	Colour Code	ANSI/TIA/EIA-598-B
12	Max attenuation	<=0.34 dB per km@1310 nm, <= 0.20 dB per km@ 1550nm
13	Operating temperature	- 20°C to 60°C
14	Weight	120 ± 5 kg/km (approx.).
15	Standard Compliance	ITU-T G.652.D Fiber, ISO/IEC 11801, ISO/IEC24702, ANSIANSI/TIA/EIA 568C.3, IEEE 802.3z Gigabit Ethernet, ROHS compliant Directive 2002/95/EC
16	Certification	CE

52. 24 Port fully loaded LIU

Sr. No.	Parameter	Specification
1	Type	19" Easy Front Access (EFA) Sliding Rack Mount LC Duplex type
2	Material	Cold rolled carbon sheet steel with electrostatic spraying
3	Size	1U; Up to 24 LC Ports
4	Adaptor plate mounting	4 nos. of adaptor plate module can be accommodated
5	Environment Temperature - Relative	-40 °C to +80 °C
6	Intensity	≤15kv(DC) /1min.no spark-over and no flying arc
7	Fibre Bending Radius	≥40 mm
8	Clamps	Cable clamps on the inner surface for fixing cables.
9	Splice tray type	Fixed type Splice tray to access pigtails available
10	Lock	Lockable front door on front with push button

11	Easy Front Access	Sliding patch panel for easy rework and maintenance.
12	Standard Compliance	EN 61587-1, Equipment - Tests for IEC 60917 and IEC 60297 Climatic and Environment: EN 61587-1/4.2, IEC60068-2-1, IEC60068-2-2, IEC60068-2-30, Earth Bond: EN61587-1/6.2, Flammability: EN61587-1/6.3, RoHS
13	Certification	CE
LC Single mode Fibre Adaptor		
1	Type	LC Single Mode OS2, Duplex
2	Sleeves	Phosphor Bronze
3	Adaptor Material	High Impact flame retardant thermoplastic UL94-V0
4	Capillary diameter tolerance	126 ± 0.5 µm (SM)
5	Operating Temperature	-40 °C to +75 °C
6	Mating durability	> 500 Mating Cycles
7	Insert. Loss/Adaptor - Single Fibre	0.2 dB Max. (0.15 dB typ.)
8	Pull strength	≥ 98 N
9	Standard Compliance	IEC 61300-2-18, IEC 61300-2-19, IEC 61300-2-1, IEC 61300-2-2
10	Certification	CE
LC Single mode 1.5m Fibre Pigtail		
1	Type	LC Single mode, 1.5 meter
2	Fiber Type	Single Mode OS2, ITU-T G.652.D
3	Tight buffered	900µm
4	Jacket	Low Smoke Zero Halogen (LSZH)
5	Flame Test	IEC 60332-1
6	Other LSZH standard	IEC 60754, IEC 61034
7	Crush Load	800 N
8	Impact	0.2 Nm
9	Bend Radius	50mm (min)
10	Operating Temperature	-10°C to +70°C
11	Max attenuation	≤0.34 dB per km@1310 nm, ≤ 0.20 dB per km@ 1550nm
12	Standard Compliance	ITU-T G.652.D Fiber, ISO/IEC 11801, EN50173 -1, ANSI TIA/EIA 568B
13	Certification	CE

53. 12 Port LIU Fully Loaded

Sr. No.	Parameter	Specification
1	Type	19" Easy Front Access (EFA) Sliding Rack Mount LC Duplex type
2	Material	Cold rolled carbon sheet steel with electrostatic spraying
3	Size	1U; Upto 24 LC Ports
4	Adaptor plate mounting	4 nos. of adaptor plate module can be accommodated
5	Environment Temperature - Relative	-40 °C to +80 °C
6	Intensity	≤15kv(DC) /1min.no spark-over and no flying arc
7	Fibre Bending Radius	≥40 mm
8	Clamps	Cable clamps on the inner surface for fixing cables.
9	Splice tray type	Fixed type Splice tray to access pigtails available
10	Lock	Lockable front door on front with push button
11	Easy Front Access	Sliding patch panel for easy rework and maintenance.
12	Standard Compliance	EN 61587-1, Equipment - Tests for IEC 60917 and IEC 60297 Climatic and Environment: EN 61587-1/4.2, IEC60068-2-1, IEC60068-2-2, IEC60068-2-30, Earth Bond: EN61587-1/6.2, Flammability: EN61587-1/6.3, RoHS
13	Certification	CE

LC Single mode Fibre Adaptor		
1	Type	LC Single Mode OS2, Duplex
2	Sleeves	Phosphor Bronze
3	Adaptor Material	High Impact flame retardant thermoplastic UL94-V0
4	Capillary diameter tolerance	126 ± 0.5 µm (SM)
5	Operating Temperature	-40 °C to +75 °C
6	Mating durability	> 500 Mating Cycles
7	Insert. Loss/Adaptor - Single Fibre	0.2 dB Max. (0.15 dB typ.)
8	Pull strength	≥ 98 N
9	Standard Compliance	IEC 61300-2-18, IEC 61300-2-19, IEC 61300-2-1, IEC 61300-2-2
10	Certification	CE
LC Single mode 1.5m Fibre Pigtail		
1	Type	LC Single mode, 1.5 meter
2	Fiber Type	Single Mode OS2, ITU-T G.652.D
3	Tight buffered	900µm
4	Jacket	Low Smoke Zero Halogen (LSZH)
5	Flame Test	IEC 60332-1
6	Other LSZH standard	IEC 60754, IEC 61034
7	Crush Load	800 N
8	Impact	0.2 Nm
9	Bend Radius	50mm (min)
10	Operating Temperature	-10°C to +70°C
11	Max attenuation	≤0.34 dB per km@1310 nm, ≤ 0.20 dB per km@ 1550nm
12	Standard Compliance	ITU-T G.652.D Fiber, ISO/IEC 11801, EN50173 -1, ANSI TIA/EIA 568B
13	Certification	CE

54. 24 Core Fibre Splice closure

Sl. No.	Parameter	Specification
1	Mounting Type	Direct Buried / Pole Mounting / Wall mounting / Aerial Mounting
2	IP Rating	IP 68
3	Material	Polycarbonate
4	Opening Angle	90 Degree
5	Fibres / Splice Tray	12F / 2
6	Max.Splice Tray Capacity	24 Fibre
7	Valve for Flash Testing	Available
8	Ground Feed-through Lugs	Available
9	Operating Temperature	-40 °C to 65 °C
10	Accessories	Seal Tape, Abrasive cloth, Nylon tie, Earth Wire, Protective Sleeve, Special Wrench
11	Certification	CE

55. 12 Core Fibre Splice closure

Sl. No.	Parameter	Specification
1	Mounting Type	Direct Buried / Pole Mounting / Wall mounting / Aerial Mounting
2	IP Rating	IP 68
3	Material	Polycarbonate
4	Opening Angle	90 Degree

5	Fibres / Splice Tray	12F / 1
6	Max.Splice Tray Capacity	12 Fibre
7	Valve for Flash Testing	Available
8	Ground Feed-through Lugs	Available
9	Operating Temperature	-40 °C to 65 °C
10	Accessories	Seal Tape, Abrasive cloth, Nylon tie, Earth Wire, Protective Sleeve, Special Wrench
11	Certification	CE

56. SC - LC Single mode 3m Fibre Patch Cord

Sr. No.	Parameter	Specification
1	Type	SC-LC Duplex Type Patch Cord, 3 meter
2	Fiber Type	Single mode OS2 as per ITU-T G.652.D
3	Jacket	Low Smoke Zero Halogen (LSZH)
4	Flame Test	IEC 60332-1
5	Other LSZH standard	IEC 60754, IEC 61034
6	Durability	500 cycles (0.2 dB max increase), 1000mate/demate cycles
7	Operating Temp	-20 °C to +70°C
8	Ferrule Concentricity	< 1µm, Other Ferrule Concentricity < 1µm
9	Max attenuation	≤0.34 dB/km @ 1310 nm, ≤0.20 dB/km @ 1550 nm
10	Insert. Loss/Adaptor	0.2 dB Max. (0.15 dB typ.)
11	Pull strength	≥ 98 N
12	Standard Compliance	Telcordia (formerly Bellcore) GR-326-CORE, IEC 874-1, ANSI/TIA-568-C.3, ISO/IEC 11801 2nd Ed., CENELEC, EN 50173, ITU-T G.652.D , RoHS
13	Certification	CE

57. Technical Manpower - CCTV & Network Expert

Sr. No.	Minimum qualifications	
1.	Technical Manpower - CCTV & Network Expert	MCA OR BE / B.Tech. or Equivalent degree with specialization in Computers Science/ IT/ Electronics & Communication) OR M.Sc./ M. Tech/ ME in Computer Science/IT OR Master's degree Physics / Mathematics / Statistics /Operations Research /Electronics with Post Graduate Diploma in Computer Science OR BCA/ B. Sc (Computer/IT)

58. Technical Manpower - Project Manager

Sr. No.	Minimum qualifications	
1.	Technical Manpower - Project Manager	MCA OR BE / B.Tech. or Equivalent degree with specialization in Computers Science/ IT/ Electronics & Communication) OR M.Sc./ M. Tech/ ME in Computer Science/IT OR Master's degree Physics / Mathematics / Statistics /Operations Research /Electronics with Post Graduate Diploma in Computer Science OR BCA/ B. Sc (Computer/IT)

59. Power Cable

Sr. No.	Specification
1	3 Core, Conductor size: 2.5 sq mm) suitable for single phase 230V AC supply/ DC supply.

60. 50 MM HDPE Pipe

Sr. No.	Parameter	Specification
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1	Colour of the duct	Colour of the duct - Bright green, Orange, Black
2	Outside diameter	50.0 mm (Tolerance + 0.4 mm - 0.0 mm)
3	Wall thickness	2-5 mm (Tolerance + 0.20 mm)
4	Additional quantity of end plug for each coil	0
5	Additional quantity of cable sealing plug for each coil	0
6	Additional quantity of end cap for each coil	0
7	Additional quantity of Duct cutter for each lot	1
8	Additional quantity of C spanner for each lot	1
9	Additional quantity of chamfering tool for each lot	1
10	Optional: Pre-installed rope for the above standard length duct	Not applicable
11	Availability of Test Report from Central Govt. LAB / NABL/ ILAC accredited or Central Government Lab to prove conformity of products to the specification	No
12	Test reports to be furnished to buyer on demand, if claimed to be available Hint- Not applicable if Test Report is not available	No

61. 32 MM HDPE Pipe

Sr. No.	Parameter	Specification
1	Colour of the duct	Colour of the duct - Bright green, Orange, Black
2	Outside diameter	32.0 mm (Tolerance + 0.4 mm - 0.0 mm)
3	Wall thickness	2-3.5 mm (Tolerance + 0.20 mm)
4	Additional quantity of end plug for each coil	0
5	Additional quantity of cable sealing plug for each coil	0
6	Additional quantity of end cap for each coil	0
7	Additional quantity of Duct cutter for each lot	1
8	Additional quantity of C spanner for each lot	1
9	Additional quantity of chamfering tool for each lot	1
10	Optional: Pre-installed rope for the above standard length duct	Not applicable
11	Availability of Test Report from Central Govt. LAB / NABL/ ILAC accredited or Central Government Lab to prove conformity of products to the specification	No
12	Test reports to be furnished to buyer on demand, if claimed to be available Hint- Not applicable if Test Report is not available	No

62. PVC Pipe - Rigid Plain Conduits of Insulating Materials

Sr. No.	Parameter	Specification
1	Classification of Conduit	Medium Mechanical Stresses
2	Nominal Size of the Conduit, (mm)	25
3	Length (Meters)	3
4	Socket ended conduit (at one end)	Yes
5	ISI Marked	No

63. Network Cable Laying (Laying & Installation Charges for Cables (with or without conduit))

Sr. No.	Parameter	Specification
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1	Suitable Conduit Pipe	Without
2	Conduit material	PVC Pipe
3	Laying location	Above Surface
4	Depth of laying in case of underground laying	0 centimeter
5	Number of Cables to be laid	Single Cable of any type

64. OFC Cable - Laying on Wall and Underground (Soft soil and Hard Soil, digging) (in meter)

Sr. No.	Parameter	Specification
1	Conduit material	HDPE Pipe - Without
2	Laying location	Under Ground
3	Depth of laying in case of underground laying	90 centimeter
4	Number of Cables to be laid	Bunch upto 5 Cables of any type

65. Laying & Installation Charges for PVC Pipe (with or without conduit)

Sr. No.	Parameter	Specification
1	Suitable Conduit Pipe	Without
2	Conduit material	PVC Pipe
3	Laying location	Above Surface
4	Depth of laying in case of underground laying	0 centimeter
5	Number of Cables to be laid	Bunch upto 3 Cables of any type

66. HDPE Pipe Laying on Wall and Underground (Soft soil and Hard Soil, digging) (in meter)

Sr. No.	Parameter	Specification
1	Conduit material	HDPE Pipe - Without
2	Laying location	Under Ground
3	Depth of laying in case of underground laying	90 centimeter
4	Number of Cables to be laid	Bunch up to 5 Cables of any type
Additional Specification Parameters		
5	90MM/50MM/32MM HDPE Pipe and Laying for HDPE and Asphalt Cutting / Horizontal Boaring/RCC/plaster cutting for the fiber connectivity.	

67. Digging and Refilling of the Hard/Soft Soil (in meter)

Sr. No.	Parameter	Specification
1	Conduit material	HDPE Pipe - Without
2	Laying location	Under Ground
3	Depth of laying in case of underground laying	90 centimeter
4	Number of Cables to be laid	Bunch up to 5 Cables of any type

68. Horizontal Boring (Soft soil and Hard Soil) (in meter)

Sr. No.	Parameter	Specification
1	Boring	Horizontal Soft / hard
2	Laying location	Under Ground

69. Supply & Installation of Pole _ Mast Suitable for CCTV System

Sr. No	Parameter	Specification
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1	Type of Pole	Cylindrical/Tubular Pole
2	Mounting Bracket	With
3	Finish	Galvanized
4	Type of Fixing	With Base Plate
5	Pole :: Mast Height (M)	6

70. Supply & Installation of Smart Pole _ Mast Suitable for CCTV / Rack & other Equipment's

Sr. No	Parameter	Specification
1	Type of Pole	Polygonal/ Round/ Single-Arm/ Dual-Arm as per site requirement
2	Mounting Bracket	With
3	Finish	Galvanized
4	Type of Fixing	With Base Plate
5	Pole :: Mast Height (M)	6-10 as per site requirement
6	Foundation	Concrete Foundation

71. Hose Pipe 32MM Metal

Sr. No	Parameter	Specification
1	Type of Pipe	Hose Metal
2	Mounting Bracket	With
3	Finish	Flexi Metal

72. VMS for Monitoring

Sr. No.	Minimum Specification
1	The VMS should support the device management (Cameras, NVRs, PTZ etc.) & User Management
2	The client of one single PC shall be able to visit multiple embedded NVRs simultaneously and make configurations as well.
3	The software shall support 100 IP devices like NVRs, Encoders and decoders (or) 300 IP channels.
4	The Software shall support query and playback via remote embedded NVRs, and the video can be downloaded during playback.
5	The software shall support video split up 1/4/9/16/25/36/49/64/81/100 or customized split on live monitoring
6	The software shall support Multiview on live screen while monitoring by the operators
7	Video management Client Software shall have the device management features like Auto find, add, delete, device group, reboot, setup, etc.
8	Client software shall have the features to generate health report like Device status, alarm info, HDD info, system info, etc.,
9	Software shall have the ability to support direct connectivity of IP Encoders and decoders.
10	Software shall support 16 channels playback screen
11	Software shall support Multi screen split, Snapshot, Record, Audio, Talkback, Alarm output control and PTZ control like PTZ, Presets, Cruise, Auto-scan, Pattern, Focus, Joystick control.
12	Software shall support the video source like local storage, centralized storage and device storage.
13	Software shall support Import/export the configuration files, video export on .avi or .mkv format which is playable by any Video player.
14	Software shall support the playback features like Snapshot, Audio, E-PTZ, Speed increase or decrease up to 8X, Synchronization playback with time search, motion search and alarm search.
15	Software shall support alarm type such as External alarm, video loss, motion, tampering, disk full or error.
16	Software shall support event actions such as Trigger recording, PTZ movement, alarm, popup video.
17	Software shall support device configuration such as Network, encode, PTZ, image, event, record, disk, account,

	maintenance
18	Software shall have the ability to receive & Pop-up the alarm generated from IP devices like cameras and NVR.
19	Software shall have ability to receive all the analytics features supported by IP cameras and NVRs.
20	Software shall support logs such as Client log, remote device log, operation log, system log, alarm log.
21	Software shall support P2P connectivity for live viewing, playback & alert management of the devices over the internet.

73. VMS Base plus client Licence

S/N	Parameter	Minimum Specification
1	General	The VMS should support any ONVIF compliant IP cameras and should support ONVIF Profile S, G, T & M and same should be reflected in www.onvif.org in the Conformant Devices.
		VMS shall be capable of being deployed in a virtualized server environment without loss of any functionality.
		The Offered VMS must be Open Platform Video Management Software (VMS) Application, should be Brand Agnostic, & should support various third Party ONVIF IP Cameras, this is Compulsorily required so that the Same VMS Applications can be scaled up in future by just Adding third Party IP Cameras & Additional Software Licenses.
2	Support of NVR and DVR	The Offered VMS must support the Following features when Connected with Third Party DVR's & NVR's i. Fetching & Displaying Live Streams from all Channels, ii. Recorded Playback Video Streams from all Channels, iii. Alarm Events Health Status of DVR's & NVR's iv. VMS is capable to search old video footage from the storage.
3	Video channels Support	The IP Video Management Software should allow Live Viewing, Recording and Management solution of Network Video surveillance systems & shall not have any Limit on the Number of Cameras to be Connected & shall be Scalable to Unlimited IP Cameras in Future by Augmentation of Camera channel Licenses & server Hardware Components.
4	User Management	Centrally controlled user management - Users, roles, rules and privileges should be stored on the VMS server allowing any authorized user to log into any workstation
5	Device Discovery	The VMS shall have ability to easily install, configure, modify, search and remove surveillance devices with automatic discovery of IP devices.
6	Event management	The VMS shall have ability to enforce custom settings for event detection, alarm notification, recording, input/out (I/O) control, and other features in response to events. The alarm management module shall support graphical displays with interactive icons to display the status of the cameras & other inputs.
7	Software/Patch Upgrade	It Should allow quick software and patch upgrade and support of new devices, drivers and operating systems. System should be able to implement software upgrades without requiring all hardware components to be reconfigured.
8	Recording & Transfer	Should support Multiple streaming, must support for Independent Stream Configuration for Recording & Live Streaming Separately
		Should allow each stream to be viewed independently by client viewer. The VMS Client must have Options to select the Recording Stream for Viewing, Separate Live Stream for Viewing & must also have the option to directly stream the Cameras irrespective of the Recording stream and Live Stream.
		Recording from connected cameras should be stored in individual databases.
		Should support multiple storage file formats such as asf/.ts/.wmv etc.
		Should support recording in all resolution at desired FPS
		Should support video cum audio recording
		Shall support automatic failover for recording

		The VMS Shall have a Built-in Storage Calculation tool, that shall allow for Storage Calculation based on the Total No. of Cameras Added, No. of days Storage is required & the Available Hard disks within the Server/Mapped Storage. The Storage Calculation must also provide estimation of the No. of Days recording that can take place depending on the Total Availability of Storage Space & No. of Cameras added & configured at their respective configuration. The Proposed VMS Solution must support native Fail over with in the application with no dependency on any external application for both hardware and application redundancy. The native failover architecture must be for both management and recording servers The Fail over and Fail-back management and recording Server shall be on hot standby, ready to take over during the primary management server fails. No manual action from the user shall be required. The fail-over time should not be beyond 30 Seconds. Should automatically retrieve and store recording stored on the camera once the network connectivity between the camera storage and the VMS is restored. Edge Recording Synchronization: VMS Server and Camera should sync recordings in case of network or other communication failure between camera and VMS, through ONVIF G Profile or through Dedicated SDK/API Integration or any other proposed solution Shall be capable of transferring recorded images to recordable media (such as CD/DVD and/or tapes) or Video Exports with Watermark and Encrypted with SSL / TSL technology, one can protect the video tampering and prove that the video is not tampered.
9	Customized Record Retention	Should support Customized recording retention period for specific camera, group, area etc.
10	Parameter Configuration	The VMS shall have ability to configure multiple streams with different quality parameters e.g. Codec (H.264, H.265, MPEG, JPEG) , resolution, frame & bit rate etc.
11	Protocol Support	HTTP, TCP, UDP, RTSP, Multicast.
12	Device Search	The VMS shall have ability to search and view device(s) based on standard criteria like ID, Name, Location, Group, Type etc.
13	Storage Indexing	VMS should store video feeds in a standard folder tree structure so that it becomes easy for system admin to browse videos categories based on year, month, date and time wise. Also, the file name should indicate important attributes like camera location, date, time etc.
14	Controls	PTZ configuration and control including presets, patterns, patrolling, priority, Zoom in/out and permissions. PTZ Control, Digital PTZ Control, PTZ Joystick Support, Preset position setup, Preset position search, Optical zoom in, zoom out, focus in, focus out, Digital zoom enable / disable, Full screen view enable/disable, Camera connect/ disconnect
15	Image Snapshot	System should allow creating a still image from live or recorded feed and storing it into a workstation.
16	Video Search and retrieval	The VMS shall have ability to quickly search and retrieve recordings: Search methods should include search by camera(s), group, date/time, alarm/event / bookmark list, smart (motion) search by creating motion index or by generating thumbnail summary of a video archive to locate specific event.
		The VMS Application must Support for P2P Communication Model for Communication of the NVR & the VMS at the state Offices. Any Additional Hardware & Software required for Achieving the P2P Communication Model has to be Considered as a part of the BID.
17	Playback Control	The system should offer following playback controls like Play/Pause, Lock speed, Forward playback, Reverse playback.
18	Reports	The system should provide interactive reporting interface with standard and user-defined custom reports and filtering options to: Review currently logged in users and functions being performed. Retrieve audit trails - user activities, errors and system logs. View list of hardware units and selected configuration options. List down configured users and corresponding roles & permissions. View details of bookmarks, event/alarm history and exported evidences.

19	Security	The VMS recorders should be able to connect via a secure connection using authentication and encryption
		o Authentication - user and password credentials
		o Encryption – 256 Bit encryption Techniques
		The VMS recorder should be able to connect via a secure HTTPS connection to its associated edge devices (IP cameras & encoders)
		The VMS management database connection should be encrypted using 256bit encryption
		The VMS should encrypt the exported file format using password protection
		The OEM of the proposed VMS should have certificate from CERT-IN empaneled Government auditors/ agencies to mitigate cyber security attacks as per OWASP Top 10 Vulnerabilities. And should have CERT-IN certificate before the date publishing of the RFP.
20	License	The proposed VMS should be supplied with all types of required licenses including workstation/client licenses (Web, Mobile) valid perpetual for life.
21	External Storage Connectivity & it's Resiliency	The VMS must support for Connecting Multiple External Storage Devices in the form of Primary & Secondary Storage Drive.
		It must also have the Option of Storage Drive Redundancy, wherein if the Primary Drive is Unavailable then the VMS Application/Recording Server must Automatically Start Recording in the Secondary Configured Drive.
		In Case of Recording has been done in Secondary Storage Drive, during the Failure of Primary Drives then after the Primary is restored the Recording that took place in the Secondary Drive shall be Synchronized in the Primary Drive.
22	VMS Web Client	The VMS Web Client shall have Dash boarding Capabilities, such that the Dashboard should Support for Drawings/Maps GIS Layer, OSM Layer, Autocad.dwg File, .JPEG file format, .PDF file format, Customized Video Grid for Live & Playback of Video & Events Table The VMS Web Client shall have a Reporting functionality in the form Camera Uptime, Downtime. The VMS Web Client shall also show the Recording server status Report, Storage Space Available status & Reports.
		The VMS Web Client must support for H.265, H,264 Codec Live & Playback Streaming.
23	Systems Management & Administration	The software MUST come as one unit and not multiple loadable units, the Management Server shall be loaded on a Single Machine, from which all the Cameras, Additional Recording Servers, Video Analytics Servers & Viewing Clients, shall be managed Centrally.
		The IP Video Management Software should allow Live Viewing, Recording and Management solution of Network Video surveillance systems & shall not have any Limit on the Number of Cameras to be Connected & shall be Scalable to Unlimited IP Cameras in Future by Augmentation of Camera channel Licenses & server Hardware Components.
		The Video Management Software shall be Client-Server based IP Video security solution that shall provide seamless management of Digital Video, Audio and data across an IP network. The video management Software shall provide full virtual matrix switching and control capability. Video from sites shall be possible to view from single or numerous workstations simultaneously at any time. Cameras, recorders, and viewing stations may be placed across the terminal in the IP network.
		The Video Management System shall allow an unlimited number of cameras to be connected to each recording server and an unlimited number of recording servers to be connected to each management server across multiple sites, if required.
		The VMS shall be based on a true open architecture that shall allow the use of non-proprietary workstation and server hardware, non-proprietary network infrastructure and non-proprietary storage. The VMS should not be Pre-Installed on Embedded Linux Platforms.
		The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.

24	Video Management Software (VMS) OEM Competency	The Open Platform Video Management Software (VMS) Application, should be Brand Agnostic, should support various third Party ONVIF IP Cameras, this is Compulsorily required so that the Same VMS Applications can be scaled up in future by just Adding third Party IP Cameras & Additional Software Licenses.
25	Cyber Security Features	The offered CMS/VMS must be cyber security certified with FIPS-140-2 encryption from Indian body for mitigating cyber security risk. A Valid Certificate for FIPS 140-2 for the CMS/VMS Application to be submitted as a Proof. The FIPS 140-2 Certification should be done on or before the Bid Publishing Date. The CMS/VMS OEM should have Performed Benchmark Appraisal & Achieved CMMI V2.0 Maturity Level - 3. Appraisal Certificate of CMMI V2.0 Level - 3 to be Submitted as a Proof. The OEM should be in the Possession of the Appraisal Certificate on or before the Bid Publishing Date.

74. Health Management Software

Sr. No.	Specification
1	Health Management Software should be able to monitor and manage the uptime status of cameras and associated network devices remotely. Should have options for managing availability based on essential uptime status and reports pdf, excel format The solution should have following features:
2	To monitor the uptime status of the cameras from locally and remotely.
3	To monitor Down, Up, not reachable alert of IP Camera/ Workstation/ Router/ Switch/ NVR.
4	Dashboard should show host statistics, total hosts, up, down, unreachable hosts, host problems and recent events
5	Drill down based dashboard with widgets, dark & light theme for ease of operations
6	Preconfigured and customizable dashboard view to choose different widgets & configure chart type such as radial, table, pie
7	Drill down based report schedule & availability
8	User configurable host groups and grouping based upon country/state/city
9	Manual addition of devices, bulk addition of devices and auto discovery of devices
10	Device addition tab allow users to put manual details such as latitude, longitude, parent, country, state, city, Tag, criticality & remarks
11	Should allow to activate & deactivate a device/host
12	Send alert via E-mail / SMS (Through Customer provided SMS Gateway)

75. Network Management Software

Sr. No	Specification
1	The solution should have dual-stack IP support (support both IPv4 and IPv6) and should be completely vendor agnostic in nature to be able to monitor a multi-vendor environment and support run on Window or Linux.
2	The system should be capable to retrieve and show fault, performance, inventory and SLA data in a single dynamic view with option to export the views into PDF, Word/ Excel, HTML etc. formats depending on the need. System should have capability to add any additional information about the nodes via custom fields.
3	System should have Node Tags for device grouping and resource/interface tagging for element grouping. Apart from Node Tags additionally system should have options to do device grouping based on default fields and customer fields
4	Provides the option to have the portal account to the end customers with restricted views limits to their specific infrastructure. System should have the capability to be implementing in DMZ and non-DMZ zone with adequate security.
5	Tool must provide Role based Access Control option
6	The integrated ITSM module should have its own Android & IOS app
7	Integrated ITSM tool must have option to publish announcements and surveys for notifying end users / requesters about any important information with option to schedule it for certain time period along with questions to get their feedback on the efficiency of the IT support team

8	The system should fetch topology via SNMP for ARP tables from routers, MAC tables from layer 2 switches, cisco Discovery Protocol, Link Layer Discovery Protocol, Foundry Discovery Protocol or SynOptics Network Management Protocol. The discovery should be automated and continuous.
9	Discovery has to work intelligently by identifying the device in the network by the given IP range and categorize into network devices and servers with vendor and model details.
10	Automatically learn devices that supports SNMP, HTTP, Ping, SMTP, POP3, SOAP, REST API, PDC, SSH and Telnet along with any required protocol to communicate to the devices.
11	Detect & highlight faults (abnormal situations) in near real-time occurring anywhere within the monitored IT Infrastructure
12	Sends alert via E-mail, SMS, , SNMP Trap, XML notification/ Execute Batch file, Pop-up window / Audio alert
13	The solution should be able to stop SLA calculation for every node in case of known downtimes. These should be a one click alarm masking capability in the system
14	Provide a notification mechanism that allows administrator to define what notification channel to be used in different time of days, and able to trigger multiple notifications to alert multiple person and actions
15	Provide online and offline reports that allow the user to view the present usage of their devices. Reports generated should be exportable in the format of HTML, PDF, Excel and CSV. Allows end-users to browse all reports using any web browser like Internet Explorer, Mozilla Firefox, Google Chrome etc. without the need to install any report specific software
16	Supports instant diagnosis of the node status through Ping, Telnet
17	Support Real-Time report generation for checking continuous reachability of target device
18	Automatically learn IP Networks and their segments, LANs, hosts, switches, routers, AAA etc. and to establish the connections and to correlate
19	It should be a Drag & Drop based Network Diagram builder, Dynamically Upload Images, Customizable objects to support multiple vendors, capability to export maps in an XML format and upload to any other system.
20	Panel View
	a. System should automatically detect the device model display the right panel without any additional configuration
	b. Panel should show all the monitored interface with status
	c. Fan status with live fan icon and LED status for power
21	Tool must provide option to perform standard compliance checks like PCI-DSS, NIST, DISA etc. across all target CLI-based network devices
22	Should identify which users, applications, protocols, countries, AS numbers, top routers, and top interfaces are consuming the most bandwidth
23	System should have capability to alternatively capture traffic data via packet capture.
24	Should be able to associate traffic coming from different sources to application names
25	Should be able to receive flows from non-SNMP-enabled devices,
26	Should monitor Type of Service (ToS), Differentiated Services Codepoint (DSCP), and Per-Hop Behaviour (PHB)/BGP AS / NEXT HOP
27	Should provide flow analysis with 1-minute granularity and The solution should be able to monitor up to 5 million flows per Minute, and should employ advanced optimization methods
28	Tool should allow QoS monitoring of WAN links across multiple technologies and across multiple protocols like HTTP, TCP, FTP, DNS etc.
29	QoS parameters should include link response time, link-level latency, link-level packet loss, link-level jitter, Round-Trip-Time etc.
30	Tool should have option to collect and store system logs from target devices including AAA, routers, switches, WLC, servers, applications & databases
31	Tool should have multiple filtering options for incoming system logs based on target device, log_ID, severity, level, message, OS type, application / database etc.
32	Tool should have option to export specific syslog messages to users via email / SMS
33	System licensing should be based only on Physical Hosts and not charge separately for individual guest VMs running on VM Hosts
34	System should have capability to monitor HTTP service, HTTPS service, FTP server statistics, POP/SMTP services, ICMP services or any customer specific port based systems
35	Cover geographically distributed networks through multi-level scalable distributed deployment architecture
36	The tool should have an integrated ITSM module which must be certified by PinkVerify for ITIL v3 on at least 05 ITIL processes and certificate must be provided on request. It should be possible to use the service

	management features like Incident Logging, Viewing, Assignment, Escalation, Reporting, SLA Management etc. in the Service Manager tool GUI. The integration should be bi-directional in nature.
37	The NMS should have Bi- Directional integrated NCCM tool and should have possibility to use the feature in future without any additional installation

76. Server

Sr. No	Parameter	Specification
1	Processor	Latest generation Intel/AMD processor(s) with 12 or higher cores Processor speed should be minimum 2.2 GHz
2	RAM	32GB (Upgradable to 64GB)
3	Graphics	Internal/External Graphic controller with minimum 2 GB video memory (non- shared), NVIDIA/AMD
4	Internal Storage	128GB or better
5	Network interface	2 X 1G ports for providing Ethernet connectivity
6	Power supply	Support 2 Hot-Swappable Power supply in N+1 Mode or more
7	RAID support	1, 5, 6, 50, 60 & Hot-spare support from day-1
8	Operating System	The licensed latest version of Linux/Windows based Operating System
9	Form Factor & HDD Bay	3U/4U, 19" Rack Mounted with 16/24 Hard Disk Bay option
10	Interfaces	Video Output: 1x D-sub VGA/DVI/HDMI/Mini Display port
		4x USB2.0/USB3.0 Ports
		1x Serial Port
		SAS/NLSAS JBOD expansion Port
11		Bidder should have to ensure smooth functioning of the CCTV camera systems in the installed VMS/CMS under the server configuration. The Server requirements mentioned in this RFP are a minimum indicative requirement. The bidders are advised to carry out a detailed assessment of the server requirements to fulfil the objectives of this RFP. Any additional server capacity requirements for the same as a part of the solution. The same has to be managed by the bidder at no additional cost to the tenderer. Bidder has to submit the required server detail in the solutions document.
12	Certification	Server should have CE/ equivalent Indian Standard, FCC/ equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard Certified and BIS certification required. Note: In case of Make in India Product UL certification is not required, however, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP.

77. Network Attached Storage

Sr. No	Parameter	Specification
1	Form Factor/Mounting	2U/3U/4U, 19" Rack Mounted (2U/3U/4U defined for single unit/chassis of complete stack/main unit, combination of units/chassis can be higher U size to achieve 2PB will be allowed.)
2	No. of Controllers per appliance	Minimum 2 nos.
3	Network Connectivity Per Controller	Minimum 4x 1GbE + 2x 10GbE SFP+ or higher
4	Capacity Expansion	Should support 0-9 or higher JBOD's/Expansion Units or should have minimum 176 HDDs or better support in a single stack
5	Storage Expansion Port per Controller	2 x 12Gb SAS Mini-SAS (SFF-8644)
6	Supported Network Protocols	SMB/CIFS, NFS/FTP/WebDAV, FC, iSCSI etc.
7	Drive Support and Type	12 or Higher # 3.5" Drives (Up to 22TB per drive) or higher
		SAS/NL-SAS HDD, 7200 RPM or higher
		Supports a mix of SAS and SATA drives in the same enclosure or different enclosure

		will be allowed
8	Cache/Memory	64 GB per device and upgradable to 128 GB per device
9	Storage Capacity along with expansion using JBODs	Bidder has to quote Usable Capacity (As per Price Bid) after application of RAID 5 group + hot-spare configuration per enclosure in a single stack For 200TB/500TB/1PB & 2PB. This can be further Expandable up to 2PB usable capacity after application of RAID 5 group + hot-spare configuration per enclosure in a single stack as per the storage requirement.
10	Management Port per Controller	1 x RJ-45 1GbE Ethernet and 1 x Serial Port
11	Green Features	Should support MAID technology to reduces power consumptions and increases the longevity of disk drives Efficient 80 Plus Compliant Power Supply
12	Supported OS	Windows Server 2016 or higher, Linux (RHEL 8.6 or higher and SLES 11 or higher)
13	Power Supply	Should support Redundant Power Supply
14	RAID configuration	RAID 1, 5, 6 & Hot spare support from day-1
15	Hot Spare Disk	It shall provide at least one hot spare disk per appliance/enclosure
16	General Features	Should support data migration to healthy drive if find un-healthy disk member in array before the disk drive fails. Should support remapping of bad sector of disk and SMART error handling Should support scheduled Backup, Asynchronous Backup and incremental backup with cloning of share & volume for data backup and recovery Write Once Read Many (WORM) Should support: logging of NVRAM error/ DRAM error Should support for Cloud Backup The storage system shall come standard with Advanced Battery Flash Backup design and should have Cache to Flash features Built-in.
17	Certification	Storage should have CE/ equivalent Indian Standard, FCC/ equivalent Indian Standard, UL 62368-1/ equivalent Indian Standard Certified and BIS certification required. Note: In case of Make in India Product UL certification is not required, however, MII product should have a certification from a NABL-approved lab/STQC Lab with equivalent IEC standard (IEC 62368-1) before the date of publishing of the RFP

81. 43"Display

Sr. No.	Specification	
1.	43"Display	43 inch Display, IPS Technology,3840x2160 (UHD)4K,350 cd/m2 ,1000:1, Input- 3 HDMI, RJ45 -1, RS232, USB-1 output Optical Output -1 for digital audio, Built In WIFI, WI-FI, Smart Share /Screen Share , Fail over, Wake on LAN, Wireless access point/Hotspot, Pre-loaded You-tube app, Play via URL, Audio Playback, 20W(10W x 2) Speaker and Accessories. OS -Android/WebOS/Tizen

82. 55"Display

Sr. No.	Specification	
1.	55"Display	55 inch Display, IPS Technology,3840x2160 (UHD)4K,400 cd/m2 ,1200:1, Input- 3 HDMI, RJ45 -1, RS232, USB-1 output Optical Output -1 for digital audio, Built In WIFI, WI-FI, Smart Share /Screen Share , Fail over, Wake on LAN, Wireless access point/Hotspot, Pre-loaded You-tube app, Play via URL, Audio Playback,20W(10W x 2) Speaker and Accessories. OS -Android/WebOS/Tizen

83. 75" Interactive Display with OPS

Sr. No.	Specification	
1.	75" Interactive Display with OPS	75 Inch Display Touch ,3840 x 2160 (UHD) ,Minimum 440cd/m2 ,1,100:1 or Higher ,Antiglare ,HDMI x3(with HDCP 2.2),VGA x 1, USB 3.0 x 4, USB 2.0 x1, USB(Type C x1 with power delivery and DP Alt Mode), OPS Slot x 1, Audio-1(Audio out to connect additional Speakers if required), Optical SPDIF x1, HDMI-1, Touch Out USB x 2, 3T Antiglare or Equivalent, Multitouch 20 or more ,OPS Win 11 ,16GB Ram,500GB SSD ,Built in Speaker30W (15X2),Compatible/Approved to smooth interface Google CTS, Accessories Remote Controller(include battery 2ea), Power Cord, QSG, Regulation Book, Touch Pen Etc. Built in Standard OS Android 11 or better, inbuilt Memory32 GB ,DDR4 Ram 4GB with inbuilt App.

84. 85" Interactive Display with OPS

Sr. No.	Specification	
1.	85" Interactive Display with OPS	85 Inch Display or higher, Touch ,3840 x 2160 (UHD) ,Minimum 400cd/m2 ,1,100:1 or Higher ,Antiglare ,3 HDMI(with HDCP 2.2) USB 3.0 x 1, USB 2.0 x2, USB(Type C x1 with power delivery and DP Alt Mode), OPS Slot x 1, Audio-1(Audio out to connect additional Speakers if required), Optical SPDIF x1, HDMI-1, Touch Out USB x 2, 3T Antiglare or Equivalent ,Multitouch 40 or more ,OPS Win 11 ,16GB Ram,500GB SSD ,Built in Speaker24 W (12X2),Compatible/Approved to smooth interface Google CTS, Accessories Remote Controller(include battery 2ea), Power Cord, QSG, Regulation Book, Touch Pen etc. inbuilt Standard OS Android 11 or better, inbuilt Memory32 GB ,DDR4 Ram 4GB with inbuilt App.

85. 55"Videowall Display

Sr. No.	Specification	
1.	55" Video wall Display	55 inch ,IPS Technology, Bezel to Bezel 0.88 MM Or better,1,920 X 1,080 (FHD), 700 Nits, Dynamic CR 450,000:1 or Better, Viewing Angle(H x V) 178X178, Response Time 8Ms,HDMI -2,DP-1, DVI-D-1,USB-1, RJ45 (LAN-1) or high to cover all types of inputs as per site requirements & future requirement, Display Port (DP) for daisy chain to run FHD contents without Controller, RJ45(LAN-1) and RS232C both for daisy chain to take control of video wall from remote location and continuous color calibration

86. Zero Bezel Gap Videowall

Sr. No.	Specification	
1.	Zero Bezel Gap Video wall	indoor Micro LED Chip on Board/Flip on Board technology with 1.25mm Pixel pitch FULL Black Coating Technology with Panel Like Smooth Surface with Protection Coating. No Pixels Exposed. Protection from Dust and Minor Water Droplets on Modules Pixel Pitch 1.25 Or better, SMD 3 in 1 LED, Die-cast Aluminium Material, 600 Nits Brightness, 5000:1 Contrast Ratio, Refresh rate 3840 HZ, Cabinet Dimensions (W x H, mm) - 600 x 337.5 x 13 / Per Cabinet Size- 27 inch (±2%), IP Rating 50, LED Life 100000,input HDMI x1, DPx1, Ops Slot. Wall Mount Accessories, Color Processing 20 Bit rate.

87. 136 inch LED Display

Sr. No.	Specification	
1.	Zero Bezel LED Display	Min. 136"(± 2") diagonal in 16:9 Aspect,1920 X 1080 Full HD, 1.57 Pixel Pitch or Less, 3in one SMD Technology, 500 nits with Auto Brightness feature, 16bit Processor, Contrast Ratio 3000:1 or more, Built in Speaker, Remote controller and Accessories, 46 mmor less, 3 x HDMI, 1X DP, 1 x USB, Control Port, Audio out, Aluminium Case material, Easy Maintenances Front.

88. 163 inch LED Display

Sr. No.	Specification	
1.	Zero Bezel LED Display	Min. 163" (+- 5") diagonal in 16:9 Aspect, 1920X1080 Full HD, 1.87 Pixel Pitch or Less, 3 in one SMD Technology, 500 nits with Auto Brightness feature, 16bit Processor, Contrast Ratio 3000:1 or more, Built in Speaker, Remote controller and Accessories, 46 mm or less, 3 x HDMI, 1X DP, 1 x USB, Control Port, Audio out, Aluminium Case material, Easy Maintenance Front.

89. Out Door LED

Sr. No.	Specification	
1.	Out Door LED	P6.67mm or lower Pixel Pitch Or better, +/- 2% +/- 2%, Screen Resolution 432 x 432 or higher, Die casting Aluminium, Service rear, 22500 pixels/m ² or more Pixel Density or more, 3 in 1 SMD Technology, 960 mm x 960 mm x 108 mm Cabinet Dimension +/- 2%, Brightness 6000 cd/m ² or more, Contrast 7000:1 or better, 14 bit Rate or Better, IP65(Front)/IP54(Rear), Viewing Angle 140/120. SQ Feet

90. LED Pole

Sr. No.	Specification	
1.	LED Pole	10ft. height from floor area, its means the Bottom level of display will be at 10 ft. height from floor. It will be installed on frame Pillar/column construction which will be made from 1" Mild Steel angle. The frame size should not less than 8"x 8" in square formation with proper reinforcement and stiffeners support to take load bearing of display, it must be coated with primer and then two coats of paint for better corrosion resistance. Frame will be grouted (foundation) 3 -4 feet minimum below the floor level using RCC and the hole size for grouting/foundation should not be less than 1.5 feet in square. There will be a Provision of bolting in base plate at the bottom of the frame to fix it with grouters Vertical frame/pillar have and arrangement at the Top side to fix it with display frame with Bolting. Display frame will be rugged and with provision of platform at back of the display for single person standing and for maintenance activities from back. Display will be covered with ACP frame/Fiber with required theme and backside must be covered with aco sheet to make protective from dust and water. Perforation for heat dissipation will be at bottom side of cover and in adequate number and size to maintain air flow requirement for system cooling purpose.

91. Graphical User Interface

Sr. No.	Specification	
1.	Graphical User Interface	Command and Control Software should be Graphical user Interface and it should be user friendly Programming to operate easy and go. Data Wall Management software for 24/7 Running Critical applications.. GUI Software must have Customer Logo Configuration, Drag and Drop Facility Customer Lay out as per input resources. Regulates user permissions based on security roles, Should be able to Manage Users and Active Directory domain user authentication. The sources can be Zoomed in and out, as well as an note on live Video, Chat with users inside control room from remote location. Solution must have Auto Source Detection allow content to be shown on the entire video wall from a single source, White Board Feature, Contain Sharing, Multiple input Source Connectivity Manager, Multiple Input Source Scheduler up to 4X4 Grid option in each Display, Live Preview Support. Should Provide IP Video Streaming Solution and Integration of Streaming Solution, Should have White board Feature Collaborate with Multiple Video walls to ensure Operational Awareness. Customized Output Resolution under Different Groups for Multi Videowall Setup, Preset Management, Source overlapping, Audio Control Etc.

92. Data wall Processor

Sr. No.	Specification	
1.	Data wall Processor	GUI Server have IP Stream, 4K60 Hz HDMI Inputs/Outputs and 4K IP Streams, 4K Resolution Background Image on whole Video wall Screen, Signal Redisplay and Preview on Control PC, iPad, Mobile Phone with Master Audio output, Automatic Temperature Detecting of Capture Cards Touch Screen Front Panel for Layout Management, Customized Output Resolution under Different Groups for Multi Videowall Setup, Pixel to Pixel Mapping for Active LED Screens, Web Browser, Third party Integration with Minimum 10 Slots 1 Control Board Slot, 9 Signal Board Slot, Customized Output Resolution under Different Groups for Multi Videowall Setup..

93. Matrix Switcher Based Processor - 32 Port

Sr. No.	Specification	
1.	Matrix Switcher Based Processor - 32 Port	Modular Matrix Switcher featuring an intelligent and high-performance Higher 4K modular matrix 32X32 for switching and distributing multi-format audio-visual signals with redundant power supply. It should include flexible matrix card slots for seamless interchangeability between input and output cards, supporting high-resolution signals up to 8K and preparing for future 8K upgrades. The system should have owasp10 certification for secure web-UI access and communication, along with secure remote operation and management. Input cards should be individually selectable and support various formats including VGA, HDMI, DVI, and SDI, as well as Twisted Pair and Fiber types. The matrix should offer a backplane data rate of 50Gbps for AV and 1Gbps for Ethernet, with control cards featuring Ethernet and RS-232 connectivity. Fiber input cards should support HDMI with Deep Colour, 3D, high-bitrate 7.1 encoded audio, and HDCP compliance. It should hold safety certifications such as CE, FCC, ROHS.

94. Matrix Switcher Based Processor -16 Port

Sr. No.	Specification	
1.	Matrix Switcher Based Processor -16 Port	The Modular Chassis Base Solution require 4K60 4:4:4 ,matrix switching with ultra-high 12.5 Gbps backplane, devices with Deep Color, 3D, 4K, and high-bitrate 7.1 encoded audio, Enables direct connection to other HDBaseT certified equipment, HDCP 2.2 compliant via 4K input and output cards data rate ports on a interchangeable format Mode .Should have AV signal format of HDMI, HDBaseT, Fiber Optic, VGA, SDI, as well as analog and digital audio.S 16x16 digital matrix, modular input/output Module and each card have one in and two output with Various Modular cards signal Format to used in switcher, HDM, Hdbase-T, Fiber and H.264 Streaming, Should have 8X8 Multichannel Audio Follow Video Matrix Switching, Should support HDCP 2.2 Compatible, Allow Streaming 1080p Signal over IP Network with no distance limitation ,USBHID Signal Extension and Power power redundancy.

95. Switcher with Processor

Sr. No.	Specification	
1.	Switcher with Processor	8 X 4 Audio Visual Switcher cum Scaler, Should have Minimum Input interface with 4 X HDMI IN, 2 X STP IN, Should have Minimum Output interface with -2 X HDMI Out, 2 X STP Out, Should support HDCP 2.2, EDID supported, Should have built in / External control processor interfaces includes Minimum 4 X IR, 4 X I/O, 4 X Relay, 2 X RS232 ports, 1 X RJ45 or External., Should have built in / External Audio DSP, Should have Audio IN interface includes 6 X mic or line inputs, 2 X Audio outputs., Minimum 40-Watt Built-in / External Power Amplifier, Should support Bluetooth pairing to function as a stand-alone speaker phone or an external Bluetooth speaker phone should be provided, Should have an option of Cloud management via IoT based platform for remotely provisioning, monitoring, and managing devices across an enterprise or an entire client base by the same OEM..

96. Relay Controller

Sr. No.	Specification	
1.	Relay Controller	Control processor Should have onboard IR/serial, COM, I/O, relay, 8 bidirectional RS232, 8 IR, 8 Relays and 8 GP/IO and 1 Ethernet port to control all the devices in the room. Should have inbuilt IR sensor to learn IR commands The compatible relay controller to control the Projection up down should be supplied as a package. Should have inbuilt processing power and internal storage to store and process the control program, Should be compatible with any (IOS/Android) wireless or wired Touch screen of any size. Should have onboard Native bacnet network/IP support or an external bacnet interface should be supplied, Should have onboard minimum of 2xRS-232, 1xRS-232/422/485, 8xRelay, 8xIR/one-way serial, 8xI/O ports, 2xRJ45 or an external control port expander should be provided to match the minimum requirement, minimum 2x network ports providing a dedicated local network or an external Network switch having VLAN capability should be supplied Should have a 4wire bi-directional communication bus to facilitate communication with other devices of the same OEM Additional ports if required can be added with minimum hassle..

97. Data wall Collaboration Solution

Sr. No.	Specification	
1.	Data wall Collaboration Solution	4K60 Simultaneous Wired and Wireless Data and Collaboration Solution Wireless Data device allows users with laptops or mobile to connect and present. Should have 4K@60 HDMI Wired Input to connect a source with HDMI directly, HDMI 1, Display Port -1,Giga Lan port, Should have audio embedding feature with 1 unbalanced stereo audio (line or mic) input on a 3.5mm jack. Should have audio de-embedding feature with 1 Analog audio line out on a 3.5mm jack. Wireless Data Connection up to 200.Should present minimum 6 users laptops or handheld devices on a single display or 12 users on two displays at a time. Should be capable of replicating any iOS device without any required app/device. Should have 2 nos. USB 3.0 & 2nos. of USB 2.0 port for connecting peripheral devices like Webcam, Microphone, Speakerphone, keyboard & mouse, Should have minimum 128GB (SSD) inbuilt memory, 8GB RAM, 3.60 GHz quad core (8th Generation) processor, Should have feature of Stream all collaboration activity from the main display to any H.264 decoder. Should have recording feature which an entire VIA video and audio session to a local video file. It should have facility to Load third party software to use the device a VC Codec, any third party software which supports Windows 10 OS can be installed by user easily. Powerful security features: user authentication, 1024-bit encryption. ISO 9001:2015, CE, FCC.

98. Switcher Solution

Sr. No.	Specification	
1.	Switcher Solution	Matrix Switcher featuring a 3-in-1 chassis that combines Seamless Videowall Processor, Scaler, and Matrix Switcher functionalities. It boasts 4 HDMI inputs and 4 HDMI outputs, with audio de-embedding supporting 4 individual balanced audio outputs and individual audio port control. Additionally, it includes a built-in Pro camp. Should supports a 3x3 matrix switcher or higher, video wall configurations (2x2 or 1x4), multi-view display modes such as Split, Side-by-Side, PIP, POP, Stacked, or Quad display. It allows clean cut frame-to-frame switching between inputs with no glitches and bezel correction options. Should be Capable of deep color HDMI support and max resolution of 4K@60. Configuration and setup are possible through embedded web pages or Protocol.

99. Data wall Resolution Manager

Sr. No.	Specification
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1.	Data wall Resolution Manager	Support Scaling resolution 4K@60 4:4:4 from any resolution , For multi input device bidder must consider device should be matrix switching & scaling that can also be used as a 2x2 video wall driver or dual and quad multi-viewers. Should have 4 HDMI Inputs and 4 scaled HDMI outputs. Should be HDTV and HDCP compliant. Should have bezel correction options. Should have Flexible Control Options - Front panel buttons, IR remote control with OSD On-Screen Display, RS 232 Ethernet with built-in Web browser. Should have Multiple Output Aspect Ratio.
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100. Touch Controller Panel

Sr. No.	Specification	
1.	Touch Controller Panel	10 inch or higher, Brightness 400 nits, Contrast Ratio 1000:1 or better. Should support web browsing and have inbuilt Mic and Speaker Built in Touch Panel Ethernet port supporting minimum 100 Mbps, Touch Panel having Wireless network connectivity Supporting 2.4 or 5 GHz frequency and range up to 45 ft with Security 128-bit. WEP, WPA and WPA2-PSK and AES or better. support native apps for Zoom Rooms conferencing control, and various room scheduling services.

101. AV Network Switch

Sr. No.	Specification	
1.	AV Network Switch	40-port 10/100/1000BASE-T (RJ45) 8port SFP+ 1G; 10G,240 Gbps non-blocking fabric across 48 ports ,AV-related controls, Audio over IP profiles, AVB profile, Video over IP profiles, Mixed Audio and Video profiles.

102. Video Transceiver

Sr. No.	Specification	
1.	Video Transceiver	Should be High-Performance Video Streaming Transceiver Should support/Streams resolution 4K@60Hz (4:4:4) signals over a 1G network interface Should support providing lossless compression.2x1 HDMI Stream manual or auto-switching,4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10, HDR10+, and Dolby Vision support, widescreen format selection video wall processing, should support USB 2.0 and KVM integration, and support for fibre Ethernet connectivity, Should supports 7.1 Surround Sound Audio with Down mixing.

103. Digital Signal Processor

Sr. No.	Specification	
1.	Digital Signal Processor	Fixed or Chassis based model can be offer 16X4 Audio Matrix with DSP with AEC, Multi-Channel DSP, AEC (Acoustic Echo Cancellation), Microphone auto mixer, Intuitive and Comprehensive Configuration and Control, Mini USB Connector, Built-in Power Amp - 2x60W @ 8Ω and 1x120W @ 70V / 100V, HDMI audio embedding and de-embedding, 4x4 Dante interface, 32-bit advanced Digital Analog Converter architecture, Supports up to 10 global presets per I/O configuration plus 10 mixer snapshot presets.

104. Indoor Speaker

Sr. No.	Specification	
1.	Indoor Speaker	2 way passive Ceiling Speaker with 30 watt at 8 ohm. Maximum Output of Speaker at 100V and 70V is 30 watt. Low Frequency Transducer (Woofer) of Speaker is 6.5" and High Frequency Transducer is 0.5". Frequency Range of Speaker is 90Hz to 20Khz. Coverage Angle of Speaker is 155 degree Horizontally as well as Vertically at 1 KHz. Sensitivity of Speaker is 88dB with maximum SPL is 102 dB . Speaker Enclosure will be Metallic with ABS Plastic Grille

105. Mounting Power Distribution

Sr. No.	Specification	
1.	Mounting Power Distribution	Power Wall Plate and Power Distribution with multiple input and output Devices with Lan, HDMI, Power input. Active Wall Plate must support 4k@4:4:4 support dashboard-forward design keeps connections close to the surface. One-touch lid retracts and disappears at the tap of a button, Gravity Cable Retractors. Keystone plate modules allow the installation of any flush mountable keystone compliant connector.

106. AOC HDMI Cable

Sr. No.	Specification	
1.	AOC HDMI Cable	Minimum 30 mtr HDMI Active Optical Cable Support rate up to 18 Gbps and resolution must Support up to 3820x2160@60 Hz or better. It shall be highly resistant with RF and EMI interference. It shall work without the use of External Power Supplies. and USB cable 2.0 or better, USB 3.0 Super speed 5Gbps standard compliant with USB 3.0 standard compliant with USB 3.0 standard 2 pair 24AWG+1pair 26AWG+2 wires 22AWG+2 drain wires 24AWG. No external power require pull power from USB source device.

107. Multi Device input and Out Put Connectivity

Sr. No.	Specification	
1.	Multi Device input and Out Put Connectivity	Multi input 4k 60 @4:4:4 and with require HDMI and DVI , Audio and Other Input Source over network with 4 /8 port. HDMI over CATx Wall Plate, Should have connectivity port for HDMI, USB-C. Output should be HDbase T. Should support 4K@60Hz with chroma sampling ,Should be capable of carrying RS-232 as control signal. Should have a minimum data rate of 10 GBPS. Up to 60W USB-C charging with the optional PS-2006-0 20V power supply. Wall plate should be capable of managing EDID. Should have automatic Live input detection. Should be capable of re-building the signal so that it can travel up to 70 meter. Should be compatible with HDTV and HDCP. Analog Audio De-embedding provided on 1 unbalanced stereo audio on a 3.5mm mini jack Safety Regularity Compliance

108. USB Cable

Sr. No.	Specification	
1.	USB Cable	USB Interconnectivity patch cord shall be high-speed USB 3.0 type-A male to type-A male. Transfer Rates shall support minimum up to 5gbps.or better the cable Braid shall Provide Maximum Protection Against EMI/RFI

109. CAT6A Cable for Data wall

Sr. No.	Specification	
1.	CAT6A Cable for Data wall	Cat 6Network Cable with PVC Pipe Unshielded Twisted Pair, Category 6A, 23 AWG solid bare copper, Insulation: High Density Polyethylene, Jacket: LSOH, Frequency: Tested up to Minimum 500 MHz, Fire Rating: EN 60332-1-2:2004 +A1:2015 +A11:2016, Standard Compliance: ANSI/TIA-568 C.2 category 6A, ISO/IEC-11801, Class E/ IEC 61156-5: category 6A, CPR (Class: B2ca-s1a, d1, a1)

110. Audio Mixer

Sr. No.	Specification	
1.	Audio Mixer	SITC Of Switcher cum mixer processor includes 1 unbalanced 3.5mm input, 4 mic/line inputs with two AEC support, and 2 outputs. It also features 2x1 HDMI switcher capability with 2 HDMI inputs

		and 1 HDMI output, supporting a max resolution of 4K@60Hz (4:4:4) and HDMI audio de-embedding support. Programmable with support for up to 10 global presets plus 10 mixer snapshot presets, it offers flexible control options via front panel, Ethernet with built-in webpages, and RS-232. Certified by CE, ISO 9001, ISO 14001.
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111. IP Power Amplifier

Sr. No.	Specification
1	The amplifier should support a minimum of 1 Nos x 10/100 Base-T network port
2	The amplifier have 1 x Mic input and 2 x Auxiliary input
3	The amplifier should be able to manage through Web GUI
4	The amplifier should support MP3, PCM and ADPCM audio codec
5	The amplifier should support Audio Sampling & Bit rate as 8KHz - 44.1KHz,
6	The amplifier should support Frequency Response between 60Hz-16KHz
7	The amplifier should support - IPv4, HTTP, ARP, SIP, RTP, TCP, UDP, IGMP,
8	The Amplifier should support Session Initiation Protocol (SIP) for easy integration with mainstream SIP PBX
9	The amplifier should support remote volume adjustment from a server software
10	The mounting kit and power cables should come up with the amplifier from day 1
11	The Amplifier should have a rated output of 260/ 360 / 500 W depending on the site requirement
12	The amplifier should have minimum one Alarm IN and Alarm Out interface
13	The amplifier should have minimum Operating temperature between -10°C - +50°C
14	The amplifier should have minimum Operating humidity 10%-90% RH non-condensing
15	The amplifier should have the working voltage as 220V AC
16	The amplifier should be provided hardware warranty and ongoing software upgrades for all major and minor release for a period of 5 years.

112. Extension Box

Sr. No.	Specification		
1.	<table border="1"> <tr> <td>Extension Box</td> <td>Extension Box for Conferencing System - It increases the no of microphone used. It should provide power for 30 microphone units. It should have two network cable connectors for dedicated network cable, Output voltage - 24V, Maximum output power 72W, Input/output terminal RJ45 Network port.</td> </tr> </table>	Extension Box	Extension Box for Conferencing System - It increases the no of microphone used. It should provide power for 30 microphone units. It should have two network cable connectors for dedicated network cable, Output voltage - 24V, Maximum output power 72W, Input/output terminal RJ45 Network port.
Extension Box	Extension Box for Conferencing System - It increases the no of microphone used. It should provide power for 30 microphone units. It should have two network cable connectors for dedicated network cable, Output voltage - 24V, Maximum output power 72W, Input/output terminal RJ45 Network port.		

113. Wireless Microphone

Sr. No.	Specification		
1.	<table border="1"> <tr> <td>Wireless Microphone</td> <td>Lapel/Handheld Single Channel Wireless Lavellier Microphone with Built in AFS(Automatic Frequency Selection) technology, Should have UHF operating mode with Frequency range of 522 - 930Mhz or better, Should have operating bandwidth 134 MHz or better, Anti Interference technology ensures Noise lock Squelch effectively blocks Stray RF or better, Microphone Frequency Response of 45Hz to 18Khz or better, Should have Signal to noise ratio less than 104dB or better, RF output Power of 10/40mW or better, Should have maximum 24 set can be used simultaneously by using multiple frequency bands in one venue, Should have die cast metal body .Microphone element should unidirectional capsule or better complete with standard accessories required as per tender.</td> </tr> </table>	Wireless Microphone	Lapel/Handheld Single Channel Wireless Lavellier Microphone with Built in AFS(Automatic Frequency Selection) technology, Should have UHF operating mode with Frequency range of 522 - 930Mhz or better, Should have operating bandwidth 134 MHz or better, Anti Interference technology ensures Noise lock Squelch effectively blocks Stray RF or better, Microphone Frequency Response of 45Hz to 18Khz or better, Should have Signal to noise ratio less than 104dB or better, RF output Power of 10/40mW or better, Should have maximum 24 set can be used simultaneously by using multiple frequency bands in one venue, Should have die cast metal body .Microphone element should unidirectional capsule or better complete with standard accessories required as per tender.
Wireless Microphone	Lapel/Handheld Single Channel Wireless Lavellier Microphone with Built in AFS(Automatic Frequency Selection) technology, Should have UHF operating mode with Frequency range of 522 - 930Mhz or better, Should have operating bandwidth 134 MHz or better, Anti Interference technology ensures Noise lock Squelch effectively blocks Stray RF or better, Microphone Frequency Response of 45Hz to 18Khz or better, Should have Signal to noise ratio less than 104dB or better, RF output Power of 10/40mW or better, Should have maximum 24 set can be used simultaneously by using multiple frequency bands in one venue, Should have die cast metal body .Microphone element should unidirectional capsule or better complete with standard accessories required as per tender.		

114. Active wall Plate

Sr. No.	Specification
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1.	Active wall Plate	Wall-plate Transmitter should feature minimum inputs such as 1 DP Alt Mode & PD 3.0 USB-C port, with outputs including 1 HDBT, 1 LOOP HDMI, and 1 IR port. It should support transmission over an extension line of up to 90m compliant with HDBaseT 3.0 standards. Should be Capable of transmitting video at a maximum data rate of 18Gbps bandwidth, supporting resolutions up to 4K@60Hz with HDCP 2.3 content protection and compliance with HDMI 2.0b specifications. Ports should include 2 USB 2.0 ports, 1 Gbps LAN port, and 1 RS-232 port for serial extension. Should have Extended USB functionality should support data rates of up to 480Mbps and USB-C charging up to 60W or higher with display On/Off Control. Remote powering via PoE should be supported. The wall plate should manage EDID, and environmental conditions should be within specified parameters. Certifications should include Safety: CE, FCC.
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115. Matrix Mult viewing Switcher

Sr. No.	Specification	
1.	Matrix Mult viewing Switcher	Matrix Switching & multiview featuring an switching cum multiviewing of 8:1 X 9:2 Seamless Multiviewer, Scaler cum Matrix Switcher. It offers powerful Multiviewer capabilities, providing dual, quad, and custom four-input displays simultaneously. Ensuring seamless switching and video scaling up to 4K 4:4:4@60. Should have 8 HDMI inputs, 1 Parallel HDBT input, and 9 HDMI outputs with 2 Mirrored HDBT outputs, it also includes four balanced stereo audio outputs. With max resolution support of 4K@60Hz (4:4:4) at 18 Gbps. Should supports multi-channel audio transmission and HDBT 3.0 outputs with Bi-Directional IR, RS-232, and Ethernet extension up to 100 meters with 15W POE providing. It includes a built-in control gateway and supports standard IT-grade 802.1x authentication for secured IT LAN connectivity. Should have Control options include front panel, Ethernet with built-in webpages, and RS-232. The device is certified by CE, FCC

116. Digital Signal Audio booster

Sr. No.	Specification	
1.	Digital Signal Audio booster	16AEC enabled Mic/Line inputs, 16 Line outputs or better , Input channel processing should include Pre amplifier, Signal generator, Expander, Compressor, 10 band Parametric EQ or better, Output Channel processing should include 31 band Graphic equalizer, Delay, Crossover, limiter or better, Other features should include Automatic mixing console, Ducker, Feedback elimination, Noise elimination, echo elimination or better, Should have built-in Bi directional USB for Software based VC as well as for playing digital audio, Should have built in Camera tracking Module, 16 Port Freely Configurable GPIO or better with Analog/Digital dynamic range of 114dB or better, Sampling rate of 48Khz or better, Frequency response of 20Hz – 20Khz or better, per channel phantom power module or better. Should be configurable thru software.

117. Room Scheduler

Sr. No.	Specification	
1.	Room Scheduler	Room Scheduler & Table top Screen with Minimum 7 in. diagonal, 16:10 / 4:3, WXGA, 1280 x 800 pixels, 350 nits (cd/m²) display. Should have LAN PoE, Should have USB, Should support IEEE 802.11a/b/g/n/ac Wi-Fi supported, Should have Seamlessly integrate with google calendar, Microsoft outlook, Should have mounting kit for Wall and Table top as per site requirement.

118. Multichannel streaming network amplifier

Sr. No.	Specification	
1.	Multichannel streaming network amplifier	Professional grade Audio-over-IP (AoIP) amplifier, local inputs, all with full DSP capabilities, Should energy star certified power amplifier, Should configurable for Lo-Z (4/8 Ω) or Hi-Z (70V or 100V) operation, Configurable for 4 x up to 75 W output, 2 x up to 150 W output, 1 x up to 300 W (bridged) output, and 2 x up to 75 W + 1 x up to 150 W (bridged) output, Should Matrix mixing of any input to any output, Should Supports mic/line level analog inputs and balanced/unbalanced

		line level outputs with capabilities of Seamless integration, central control system should be from the same OEM for better compatibility.
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119. Key pad Controller

Sr. No.	Specification	
1.	Key pad Controller	Wall mount automation controller should Control System automation processor with minimum 2 Relay port, 1x IR, 1x COM and 1xIO and 1x four wire bi-directional communication port or additional expansion module with all these ports should be supplied, Should be wall or lectern mount compatible, Should have minimum Ten buttons customizable with replaceable labels, plus rotary volume control with circular volume gauge and additional power and mute buttons or additional module to be supplied to meet the minimum specification, should support on-board RS-232, IR, relay, and Versiport control ports, Should support iPhone, iPad, and Android device control app, Should support Native BACnet network and IP support, Should support Enterprise-grade security and authentication, Should be IPv6 ready, should be capable of powering via POE+ power sourcing network switch, should be supplied with suitable POE+ injector..

120. Graphic /Capture Card 4K Resolution

Sr. No.	Specification	
1.	Graphic /Capture Card 4K Resolution	Capture card Should convert HDMI 2.0 to USB 3.0 supporting UVC. Should support input resolution of 4K UHD @ 60 fps 4:4:4 with support for 12-bit HDR. Should support HDMI or analog audio. Should support USB 3.0 device supporting UVC and UAC. Should support output on USB: HD 1080p @ 60 fps uncompressed; and HDMI: 4K UHD @ 60 fps 4:4:4 with support for 12-bit HDR. Should be USB powered via connecting device. Should have flanges for mounting underneath the table or additional mounting accessories should be supplied

121. Audio Video Over the Network

Sr. No.	Specification	
1.	Audio Video Over the Network	4K60 4:4:4 HDR Network AV Encoder cum Decoder, Should be field configurable as Encoder or Decoder, Should support minimum resolution of 4096x2160@60Hz (4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color or better, Should support bitrate 200 to 950Mbps, Should support 4K60 4:4:4 video over 1Gigabit Ethernet per unit, Should support HDCP 2.3 or better, Should have built-in scaler to scale the encoded source resolution up or down to match the native resolution of the display device or an external scaler should be supplied, Should support video wall configurations minimum 8 x 8 or more, Should support audio embedding and de-embedding or an external audio embedder and de-embedder should be supplied, Should have built-in IR and RS-232 port for controlling the connected display or an external control port expander should be supplied, Should Support device control via CEC, IR, RS-232, and Ethernet, Should Support selection between constant bitrate and Adaptive bitrate, Should support AES67 audio Transmit and Receive capability, Should have built-in USB and KVM integration or separate KVM switcher should be supplied, Should support Enterprise-grade security including 802.1X, Active Directory credential management, TLS, and AES-128 or better, Should be capable of powering via POE+ power sourcing network switch.

122. 1TB USB SSD hard Disk

Sr. No.	Specification
1.	1TB USB SSD hard Disk

123. 2TB USB SSD hard Disk

Sr. No.	Specification
1.	2TB USB SSD hard Disk

124. 4TB USB SSD hard Disk

Sr. No.	Specification
1.	4TB USB SSD hard Disk

125. 10TB Surveillance hard Disk

Sr. No.	Specification
1.	10TB hard Disk compatible with the quoted NVR

126. Audio Video collaboration Software

Sr. No.	Specification		
1.	<table border="1"> <tr> <td>Audio Video collaboration Software</td><td>Should allow to use multiple Native room VC platform with single device. Should be applicable to push multiple cloud-based VC invitation links to the calendar. Should be integrate with the calendar authentication. Should display multiple platform VC invitation links to the control screen. VC Application Like Zoom, Google meet, Webex Etc. Should extend the screen along with touch controls. Should be compatible with any Camera, Microphone and Speaker. Should reflect the room availability and room scheduling details on the screen. Should be able to share content wired and wirelessly. Should connect to files, Dropbox and One drive. Should have Whiteboard, Camera Control, Virtual Keyboard & Mouse, Office 365, Browser and DocView features. Should support the application GUI of room control system. Should have windows-based operating system. Should Supply with touch 10 inch Monitor to Operate Software and Should supply with MiniPC i7 Processor, 32 GM Ram, 256 GB SSD to Installed Software.</td></tr> </table>	Audio Video collaboration Software	Should allow to use multiple Native room VC platform with single device. Should be applicable to push multiple cloud-based VC invitation links to the calendar. Should be integrate with the calendar authentication. Should display multiple platform VC invitation links to the control screen. VC Application Like Zoom, Google meet, Webex Etc. Should extend the screen along with touch controls. Should be compatible with any Camera, Microphone and Speaker. Should reflect the room availability and room scheduling details on the screen. Should be able to share content wired and wirelessly. Should connect to files, Dropbox and One drive. Should have Whiteboard, Camera Control, Virtual Keyboard & Mouse, Office 365, Browser and DocView features. Should support the application GUI of room control system. Should have windows-based operating system. Should Supply with touch 10 inch Monitor to Operate Software and Should supply with MiniPC i7 Processor, 32 GM Ram, 256 GB SSD to Installed Software.
Audio Video collaboration Software	Should allow to use multiple Native room VC platform with single device. Should be applicable to push multiple cloud-based VC invitation links to the calendar. Should be integrate with the calendar authentication. Should display multiple platform VC invitation links to the control screen. VC Application Like Zoom, Google meet, Webex Etc. Should extend the screen along with touch controls. Should be compatible with any Camera, Microphone and Speaker. Should reflect the room availability and room scheduling details on the screen. Should be able to share content wired and wirelessly. Should connect to files, Dropbox and One drive. Should have Whiteboard, Camera Control, Virtual Keyboard & Mouse, Office 365, Browser and DocView features. Should support the application GUI of room control system. Should have windows-based operating system. Should Supply with touch 10 inch Monitor to Operate Software and Should supply with MiniPC i7 Processor, 32 GM Ram, 256 GB SSD to Installed Software.		

127. Multi Device out /in Processor

Sr. No.	Specification		
1.	<table border="1"> <tr> <td>Multi Device out /in Processor</td><td>Should be able control any AV/IT device with its corresponding logic without any effect in resolution. it should support 4k@60 4:4:4 Input and Out Should have 4GB or better, 32 GB SSD or better, Lan port, Dual Core 1.4GHZ or better. 3 USB, On 2 USB 3.0 connectors and 1 USB connector, 2HDMI port in and out fully customizable User Interface capabilities which can handle minimum 5 input to Manage Easy work Process of AV and It or as require in and output solution.</td></tr> </table>	Multi Device out /in Processor	Should be able control any AV/IT device with its corresponding logic without any effect in resolution. it should support 4k@60 4:4:4 Input and Out Should have 4GB or better, 32 GB SSD or better, Lan port, Dual Core 1.4GHZ or better. 3 USB, On 2 USB 3.0 connectors and 1 USB connector, 2HDMI port in and out fully customizable User Interface capabilities which can handle minimum 5 input to Manage Easy work Process of AV and It or as require in and output solution.
Multi Device out /in Processor	Should be able control any AV/IT device with its corresponding logic without any effect in resolution. it should support 4k@60 4:4:4 Input and Out Should have 4GB or better, 32 GB SSD or better, Lan port, Dual Core 1.4GHZ or better. 3 USB, On 2 USB 3.0 connectors and 1 USB connector, 2HDMI port in and out fully customizable User Interface capabilities which can handle minimum 5 input to Manage Easy work Process of AV and It or as require in and output solution.		

128. Multi Device AV and IT Device Programing software Application

Sr. No.	Specification		
1.	<table border="1"> <tr> <td>Multi Device AV and IT Device Programing software Application</td><td>Software application that enables you to execute all your room control actions straight from a Any IT Device or input and output Device a user interface and the controlled devices by using the power of controller cloud-based control & room management platform, it should enables you to operate multiple devices over Ethernet such as scalers, video displays, audio amplifiers, Blu-ray players, sensors, screens, shades, door locks, and lights. easy to install, configure and modify control system without any prior knowledge in programming Should support format conversion, control format converters to enable controlling almost any device.</td></tr> </table>	Multi Device AV and IT Device Programing software Application	Software application that enables you to execute all your room control actions straight from a Any IT Device or input and output Device a user interface and the controlled devices by using the power of controller cloud-based control & room management platform, it should enables you to operate multiple devices over Ethernet such as scalers, video displays, audio amplifiers, Blu-ray players, sensors, screens, shades, door locks, and lights. easy to install, configure and modify control system without any prior knowledge in programming Should support format conversion, control format converters to enable controlling almost any device.
Multi Device AV and IT Device Programing software Application	Software application that enables you to execute all your room control actions straight from a Any IT Device or input and output Device a user interface and the controlled devices by using the power of controller cloud-based control & room management platform, it should enables you to operate multiple devices over Ethernet such as scalers, video displays, audio amplifiers, Blu-ray players, sensors, screens, shades, door locks, and lights. easy to install, configure and modify control system without any prior knowledge in programming Should support format conversion, control format converters to enable controlling almost any device.		

129. Multi window Operation/Display Solution

Sr. No.	Specification	
1.	Multi window Operation/Display Solution	Solution should supports video resolutions up to 4K@60Hz 4:4:4, 18Gbps data rate or better support HDCP 2.3, true seamless switching – zero time video Cuts, HDMI Support - HDR10, CEC support, Deep Color, 7.1 PCM, Dolby TrueHD, DTS–HD, fully customized layouts means four windows can be positioned anywhere windows size can be customized to any size, provides Picture in Picture and Picture outside of Picture as well as Quad–window modes, 3 window mode also supported, can save presets for multi–window arrangements, presets can be called from front panel or its inbuilt web page, Each window can have a border with a selectable color, Logo support ,logo overlay as well as a boot screen logo, Independent audio source selection in all modes, control via the built–in WebGUI, also 4–Window multi–viewer as well via the OSD–driven front–panel switches, Ethernet & RS-232 port,4 HDMI inputs, 1 HDMI & 1 HDBaseT output, 1 balanced stereo audio output also can work as 4x2 scaler cum Switcher with integrated scaling and Switching technology.

130. ICCC infrastructure Management

Sr. No.	Specification
1.	A software based Infrastructure Management system is required to auto detect all IP Devices, then document them with Serial Number, Asset Tags, Warranty details etc. installed at various locations of the site.
2.	Software Features:
3.	Should provide automatic detection of IP Devices including IP Cameras, Servers, Computers based on network information in the core switch and monitor critical devices network connection through ICMP based protocols such as Ping.
4.	Should provide information such as MAC id, Host Name, IP Address of the IP Devices connected to the network.
5.	Should support creating various type of IP Devices catalog and update the type by defining the catalog in the subnet., while scanning the subnet the devices should be auto updated according to the device catalog.
6.	Should allow changing the IP devices type manually by selecting the model from the inventory.
7.	Should support CAD-generated drawing or other types of floor plans to allow for easier interactions with the infrastructure layouts and documentation. Should provide search functionality and the result should locate the IP Devices connected in the field.
8.	Should provide manual link creation in graphical format, to provide full end-to-end visibility.
9.	Should provide rack elevations and view of communication Racks in the server room.
10.	Should provide Graphical View of floor plans and manually document the geographical locations of IP Devices based on their location in the floor maps. Similarly, the software should document the servers and equipment's in the server room cabinets.
11.	Should provide 3-Dimensional view of racks / cabinets.
12.	Should provide Geographic information (GIS) of customer location and premises with Google maps.
13.	Should provide Location Based User to access the customer information based on location and user access rights.
14.	Should show history of IP Devices and fields to enter asset tag, serial number.
15.	Should generate report and information of IP Devices on site basis, building basis, floor basis or asset type basis.
16.	Should support easy import export options via excel to manually update IP Devices information.
17.	Should support uploading a file in a Work Order against asset.
18.	Database - The database should be using an open database like Microsoft SQL.
19.	The solution should support Real Time Interconnect Intelligent cabling Solution in server room and documenting the connectivity of every IP device and other cabling documentation including various backbone cables from other buildings. The system should provide alerts and visual guidance on both ends of an intelligent patching by LEDs for:

	a. Patch cord connections or disconnections from the patch panel.
	b. Patch cord connections or disconnections from the switch.
	c. Inter-changing of patch cords at the switch side.
	d. Inter-changing of patch cords at the panel side.
	e. LEDs on both end of the patch cord connection.
20.	These alerts should be patching connection or disconnection alerts. These should show exact information about the panel port or switch port, which got disconnected or connected.
21.	The solution should have a dashboard for IT Administrator to see over all information.
	The solution should be a web-based application with a permanent license and unlimited user access.
	Hardware Features: (Controllers, Intelligent Cabling Panels, accessories etc.)
	The hardware should support for the interconnect patching (should provide physical verification of connectivity both at panel port and switch port levels).
	The hardware and Panels should provide visual indication (an LED at switch side patching and panel ports with LEDs).
	While in interconnect patching, the alerts should show location of the patching port.
	Should provide alerts on Connectivity changes in real time through physical verification.
	Should provide LED guidance based Scheduled Work orders.
	LED above each port - indicating patching, patching work order pending and correcting blinking mode in case of patching mistake.
	Sound – in case of patching or removal of a cord either intelligent panels or between intelligent panels to a switch.
	<u>Intelligent Modular Copper Frames</u>
	1. The Copper Frame should support interconnect topology.
	2. The Copper Frame should be a managed frame that supports up to 24 RJ-45 modular jacks.
	3. The Copper Frame should have a single LED above each port. The panel should have a push button to track the physical connectivity of a patch cord and also light up the LED on both side of the patching.
	<u>Copper Patch Cord</u>
22.	1. Patch Cords support should support intelligent interconnect patching.
	2. Should be backward compatible with Category 5e and 6 – UTP and STP.
	3. Should be 100% tested at the factory
	<u>Intelligent Fiber Trays (Intelligent Tray without Cassette) as per requirement</u>
	1. The Fiber Tray should support interconnect network topologies.
	2. The Fiber Tray should support three types of Fiber patching options: LC-LC, LC-MPO, and MPO-MPO.
	3. The Fiber Tray should support both Single-Mode (SM) and Multi-Mode (MM) OM4 Fiber types.
	4. The Fiber Tray should be a high-end Fiber optics-managed tray that supports up to 96 LC-LC Fiber strands in 1 U (LC-LC and LC-MPO) along with a full management system.
	5. To assist in monitoring, configuring, and troubleshooting, the Fiber Tray should include a bi-colour LED on the tray and a single LED above each port in the cassette.
	6. The Fiber Tray should contain a push button that enables you to initiate manual port scanning for viewing system connectivity. The panel push button to track the physical connectivity of a patchcord and also light up the LEDs on both side of the patching.
	7. The solution should be able to detect removal of individual cassettes from the panel.
	<u>Intelligent Fiber LC Cassettes as per requirement</u>
	1. Front connection (patch cord side) should have 12 x LC duplex adapters
	2. Back connection (cabling side) should have 12 x LC duplex adapters
	3. Should have one pair of LEDs for each port on the front panel (that is, one LED for each Fiber).
	4. LEDs should show the status of ports.
	<u>Intelligent Fiber Patch Cord as per requirement</u>
	1. Patch Cords should support intelligent communication that supports physical tracking of both end of the connectivity.

SECTION III

Form no. F1 – FINANCIAL BID FORMAT

Sr. No	ITEM	Qty.	UoM (In Nos. / Mtr.)	Unit Price with Warranty (In Rs. Without tax)	Total Price (In Rs. Without tax)	Rate of GST (%)
A	B	C		D	E=C*D	F
1.	2MP Dome Camera	5	Nos.			
2.	2MP Bullet Camera	5	Nos.			
3.	2MP Long Range Bullet Camera	5	Nos.			
4.	2MP PTZ Camera 30X	5	Nos.			
5.	2MP Box Camera	1	Nos.			
6.	5MP Dome Camera	5	Nos.			
7.	5MP Bullet Camera	5	Nos.			
8.	5MP Long Range Bullet Camera	5	Nos.			
9.	5MP PTZ Camera 30X	5	Nos.			
10.	5MP Box Camera	5	Nos.			
11.	2MP Motorized LPR Bullet Camera	1	Nos.			
12.	IR Illuminator	1	Nos.			
13.	Joystick	1	Nos.			
14.	8 Channel NVR with 2 SATA Interface Loaded with 8TB Storage Capacity	1	Nos.			
15.	16 Channel NVR with 8 SATA Interface Loaded with 16TB Storage Capacity	1	Nos.			
16.	32 Channel NVR with 8 SATA Interface Loaded with 32TB Storage Capacity	1	Nos.			
17.	64 Channel NVR with 8 SATA Interface Loaded with 64TB Storage Capacity	1	Nos.			
18.	128 Channel NVR with 16 SATA Interface Loaded with 80TB Storage Capacity	1	Nos.			
19.	8 Port Network PoE Switch	5	Nos.			
20.	8 Port Network Industrial Grade PoE Switch	1	Nos.			
21.	24 Port Network PoE Switch	2	Nos.			
22.	24 Port Network Layer 2 Switch	2	Nos.			
23.	24 Port SFP Network Switch	1	Nos.			
24.	48 Port Layer 3 Switch	1	Nos.			
25.	24 Port Layer 3 Switch	1	Nos.			
26.	MiniGBIC Transceiver 1G	5	Nos.			

27.	MiniGBIC Transceiver 10G	5	Nos.			
28.	MiniGBIC Transceiver 1G -80km	1	Nos.			
29.	MiniGBIC Transceiver 10G – 80km	1	Nos.			
30.	9U Network Rack with 600VA UPS	5	Nos.			
31.	9U Outdoor Network Rack	5	Nos.			
32.	12U Network Rack	5	Nos.			
33.	24U Network Rack	5	Nos.			
34.	42U Network Rack	5	Nos.			
35.	42 U Cooling Rack with required UPS power	1	Nos.			
36.	1KVA Online UPS with 30Min Back-up	1	Nos.			
37.	3KVA Online UPS with 30Min Back-up	1	Nos.			
38.	5KVA Online UPS with 30Min Back-up	1	Nos.			
39.	20KVA Online UPS with 30Min Back-up	1	Nos.			
40.	Surge Protection Device	1	Nos.			
41.	CAT6 Cable Indoor	500	Mtr.			
42.	CAT6 Cable Outdoor	100	Mtr.			
43.	CAT6 8 Port Patch Panel	5	Nos.			
44.	CAT6 24 Port Patch Panel	5	Nos.			
45.	Copper / Fiber Hybrid Patch Panel	1	Nos.			
46.	CAT6 Patch Cord -1Mtr	10	Nos.			
47.	CAT6 Patch Cord -2Mtr	10	Nos.			
48.	CAT6 Information Outlet and Face Plate	10	Nos.			
49.	4 core single mode Drop cable	200	Mtr.			
50.	6Core SM Type OFC	200	Mtr.			
51.	12Core SM Type OFC	200	Mtr.			
52.	24Port LIU Fully Loaded	5	Nos.			
53.	12Port LIU Fully Loaded	5	Nos.			
54.	24 Core Fibre Splice closure	1	Nos.			
55.	12 Core Fibre Splice closure	5	Nos.			
56.	Fiber Patch Cord Single Mode	25	Nos.			
57.	Technical Manpower - CCTV & Network Expert	1	Nos.			
58.	Technical Manpower - Project Manager	1	Nos.			
59.	Power Cable	1	Mtr.			
60.	50 MM HDPE Pipe	1	Mtr.			
61.	32MM HDPE Pipe	250	Mtr.			
62.	PVC Pipe	100	Mtr.			
63.	Laying of Network Cable	100	Mtr.			

64.	Laying of OFC Cable	100	Mtr.			
65.	Laying of PVC Pipe	100	Mtr.			
66.	Laying of HDPE Pipe	100	Mtr.			
67.	Digging and Refilling of the Hard/Soft Soil	25	Mtr.			
68.	Horizontal Boring	1	Mtr.			
69.	Pole / Mast for the CCTV Camera	1	Nos.			
70.	Smart Pole / Mast for CCTV / Rack & Other Equipment's	1	Nos.			
71.	Hose Pipe 32MM Metal	1	Mtr.			
72.	VMS for Monitoring	1	Nos.			
73.	VMS Base plus client License	1	Nos.			
74.	HMS	1	Nos.			
75.	NMS	1	Nos.			
76.	Server	1	Nos.			
77.	Network Attached Storage with 200TB Storage Capacity	1	Nos.			
78.	Network Attached Storage with 500 TB Storage Capacity	1	Nos.			
79.	Network Attached Storage with 1PB Storage Capacity	1	Nos.			
80.	Network Attached Storage with 2PB Storage Capacity	1	Nos.			
81.	43" Display	5	Nos.			
82.	55" Display	1	Nos.			
83.	75" Interactive Display with OPS	1	Nos.			
84.	85" Interactive Display with OPS	1	Nos.			
85.	55" Video wall	1	Nos.			
86.	Zero Bezel Gap Video wall	1	Sq. Ft.			
87.	136 Led Display	1	Nos.			
88.	163" Zero Bezel LED Display	1	Nos.			
89.	Out Door LED	1	Sq. Ft			
90.	Outdoor LED Pole 10ft. height from floor area, its means the Bottom level of display will be at 10 ft.	1	Nos.			
91.	Graphical User Interface	1	Nos.			
92.	Data wall Processor	1	Nos.			
93.	Matrix Switcher Based Processor -32 Port	1	Nos.			
94.	Matrix Switcher Based Processor - 16Port	1	Nos.			
95.	Switcher with Processor	1	Nos.			
96.	Relay Controller	1	Nos.			
97.	Datawall Collaboration Solution	1	Nos.			

98.	Switcher Solution	1	Nos.			
99.	Datawall Resolution Manager	1	Nos.			
100.	Touch Controller Panel	1	Nos.			
101.	AV Network Switch	1	Nos.			
102.	Video Transceiver	1	Nos.			
103.	Digital Signal Processor	1	Nos.			
104.	Indoor Speaker wall mount	1	Nos.			
105.	Mounting Power Distribution	1	Nos.			
106.	AOC HDMI Cable	1	Mtr.			
107.	Multi Device input and Out Put Connectivity	1	Nos.			
108.	USB Cable	1	Mtr.			
109.	CAT6A Cable	100	Mtr.			
110.	Audio Mixer	1	Nos.			
111.	IP Power Amplifier	1	Nos.			
112.	Extension Box	1	Nos.			
113.	Wireless Microphone	1	Nos.			
114.	Active wall Plate	1	Nos.			
115.	Matrix Multiviewing Switcher	1	Nos.			
116.	Digital Signal Audio booster	1	Nos.			
117.	Room Scheduler	1	Nos.			
118.	Multichannel streaming network amplifier	1	Nos.			
119.	Key pad Controller	1	Nos.			
120.	Graphic /Capture Card 4K Resolution	1	Nos.			
121.	Audio Video Over the Network	1	Nos.			
122.	1TB USB External SSD Hard Disk	1	Nos.			
123.	2TB USB External SSD Hard Disk	1	Nos.			
124.	4TB USB External SSD Hard Disk	1	Nos.			
125.	10TB Surveillance Hard Disk for the NVR	1	Nos.			
126.	Audio /Video collaboration Software	1	Nos.			
127.	Multi Device out /in Processor	1	Nos.			
128.	Multi Device AV and IT Device Programing software Application	1	Nos.			
129.	Multiwindow Operation/Display Solution	1	Nos.			
130.	ICCC infrastructure Management	1	Nos.			
Grand Total						

Note:

- L1 will be the lowest sum total of rates of all line items without tax.

- Cost as indicated above is inclusive of all taxes excluding GST. Amount of GST, as applicable at the time of billing, shall be borne additionally by the Authority.
- Bidder may take a note that “as this is a Rate Contract bid wherein successful bidder will be finalized for the execution of work as per the scope of work and bid terms & conditions. However, it does not guarantee any order/ quantity. Orders will be released separately based on the actual requirement during the contract duration at the discovered prices”. The quantity is only indicative & for reference purpose.

Annexure – AA - Dismantling and Reinstalling Charges

Sr. No.	Items	Qty. (In Nos./Mtr.)	Unit Price (In Rs. Without tax)
1	2MP Dome Camera	1	
2	2MP Bullet Camera	1	
3	2MP PTZ Camera 30X	1	
4	2MP Box Camera	1	
5	IR Illuminator	1	
6	NVR	1	
7	8 Port Network PoE Switch	1	
8	8 Port Network Industrial Grade PoE Switch	1	
9	24 Port Network PoE Switch	1	
10	9U Network Rack	1	
11	1KVA Online UPS with 30Min Back-up	1	
12	CAT6 Cable	1	
13	CAT6 8 Port Patch Panel	1	
14	CAT6 24 Port Patch Panel	1	
15	Network Attached Storage	1	
16	Display	1	

Performa of Compliance letter/Authenticity of Information Provided
On Non judicial Stamp paper of Rs. 300 duly attested by the First class Magistrate/Notary Public)

Date:

To,
DGM (Technical), Gujarat Informatics Ltd,
Block No. 2, 2nd Floor, C & D Wing, Karmayogi Bhavan
Sector - 10 A, Gandhinagar – 382010.

Sub: Compliance with the tender terms and conditions, specifications and Eligibility Criteria

Ref: Tender no. HWT18092024

Dear Sir,

With reference to above referred tender, I, undersigned <<Name of Signatory>>, in the capacity of <<Designation of Signatory>>, is authorized to give the undertaking on behalf of <<Name of the bidder>>.

We wish to inform you that we have read and understood the technical specification and total requirement of the above mentioned bid submitted by us.

We hereby confirm that all our quoted items meet or exceed the requirement and are absolutely compliant with specifications mentioned in the bid document.

We also explicitly understand that all quoted items meet technical specification of the bid & that such technical specification overrides the brochures/standard literature if the same contradicts or is absent in brochures.

In case of breach of any tender terms and conditions or deviation from bid specification other than already specified as mentioned above, the decision of GIL Tender Committee for disqualification will be accepted by us.

The Information provided in our submitted bid is correct. In case any information provided by us are found to be false or incorrect, you have right to reject our bid at any stage including forfeiture of our EMD/ PBG/cancel the award of contract. In this event, GIL reserves the right to take legal action on us.

Thanking you,

Dated this _____ day of _____ 2024

Signature: _____

(in the Capacity of) : _____

Duly authorized to sign bid for and on behalf of

Note: This form should be signed by authorized signatory of bidder

Annexure A

Format of Earnest Money Deposit in the form of Bank Guarantee

Ref:

Bank Guarantee No.

Date:

To,

DGM (Technical), Gujarat Informatics Ltd,
Block No. 2, 2nd Floor, C & D Wing, Karmayogi Bhavan
Sector - 10 A, Gandhinagar – 382010.

Whereas ----- (here in after called "the Bidder") has submitted its bid dated ----- in response to the Tender no: HWT18092024 KNOW ALL MEN by these presents that WE ----- having our registered office at ----- (hereinafter called "the Bank") are bound unto the Gujarat Informatics Limited in the sum of ----- for which payment well and truly to be made to Gujarat Informatics Limited, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this ----- day of ----- 2024.

THE CONDITIONS of this obligation are:

1. The E.M.D. may be forfeited:

- a. if a Bidder withdraws its bid during the period of bid validity
- b. Does not accept the correction of errors made in the tender document;
- c. In case of a successful Bidder, if the Bidder fails:
 - (i) To sign the Contract as mentioned above within the time limit stipulated by purchaser or
 - (ii) To furnish performance bank guarantee as mentioned above or
 - (iii) If the bidder is found to be involved in fraudulent practices.
 - (iv) If the bidder fails to submit the copy of purchase order & acceptance thereof.
 - (v) If the successful bidder fails to submit the Performance Bank Guarantee & sign the Contract Form within prescribed time limit, the EMD of the successful bidder will be forfeited. GIL also reserves the right to blacklist such bidder from participating in future tenders if sufficient cause exists

We undertake to pay to the GIL/Purchaser up to the above amount upon receipt of its first written demand, without GIL/ Purchaser having to substantiate its demand, provided that in its demand GIL/ Purchaser will specify that the amount claimed by it is due to it owing to the occurrence of any of the abovementioned conditions, specifying the occurred condition or conditions.

This guarantee will remain valid up to the validity of Bid +90 days. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the OWNER/PURCHASER and further agrees that if this guarantee is extended for a period as mutually agreed between bidder &

owner/purchaser, the guarantee shall be valid for a period so extended provided that a written request for such extension is received before the expiry of validity of guarantee.

The Bank shall not be released of its obligations under these presents by any exercise by the OWNER/PURCHASER of its liability with reference to the matters aforesaid or any of them or by reason or any other acts of omission or commission on the part of the OWNER/PURCHASER or any other indulgence shown by the OWNER/PURCHASER or by any other matter or things.

The Bank also agree that the OWNER/PURCHASER at its option shall be entitled to enforce this Guarantee against the Bank as a Principal Debtor, in the first instance without proceeding against the SELLER and not withstanding any security or other guarantee that the OWNER/PURCHASER may have in relation to the SELLER's liabilities.

Dated at _____ on this _____ day of _____ 2024.

Signed and delivered by

For & on Behalf of

Name of the Bank & Branch &
Its official Address

Approved Bank: All Nationalized Bank including the public sector bank or banks (operating in India having branch at Ahmedabad/ Gandhinagar) as per the G.R. no. FD/MSM/e-file/4/2023/0057/DMO dated 21.04.2023 issued by Finance Department or further instruction issued by Finance department time to time.

Proforma of Contract-cum-Equipment
Performance Bank Guarantee
(To be stamped in accordance with Stamp Act)

Ref:

Bank Guarantee No.

Date:

To

Name & Address of the Purchaser/Indenter

Dear Sir,

In consideration of Name & Address of the Purchaser/Indenter, Government of Gujarat, Gandhinagar (hereinafter referred to as the OWNER/PURCHASER which expression shall unless repugnant to the context or meaning thereof include successors, administrators and assigns) having awarded to M/s. having Principal Office at (hereinafter referred to as the "SELLER" which expression shall unless repugnant to the context or meaning thereof include their respective successors, administrators, executors and assigns) the supply of _____ by issue of Purchase Order No..... Dated issued by Gujarat Informatics Ltd. ,Gandhinagar for and on behalf of the OWNER/PURCHASER and the same having been accepted by the SELLER resulting into CONTRACT for supplies of materials/equipments as mentioned in the said purchase order and the SELLER having agreed to provide a Contract Performance and Warranty Guarantee for faithful performance of the aforementioned contract and warranty quality to the OWNER/PURCHASER, _____ having Head Office at (hereinafter referred to as the 'Bank' which expressly shall, unless repugnant to the context or meaning thereof include successors, administrators, executors and assigns) do hereby guarantee to undertake to pay the sum of Rs. _____ (Rupees _____) to the OWNER/PURCHASER on demand at any time up to _____ without a reference to the SELLER. Any such demand made by the OWNER/PURCHASER on the Bank shall be conclusive and binding notwithstanding any difference between Tribunals, Arbitrator or any other authority.

The Bank undertakes not to revoke this guarantee during its currency without previous consent of the OWNER/PURCHASER and further agrees that the guarantee herein contained shall continue to be enforceable till the OWNER/PURCHASER discharges this guarantee. OWNER/PURCHASER shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee from time to time to extend the time for performance by the SELLER of the aforementioned CONTRACT. The OWNER/ PURCHASER shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the SELLER, and to exercise the same at any time in any manner, and either to enforce to forebear to enforce any covenants contained or implied, in the aforementioned CONTRACT between the OWNER/PURCHASER and the SELLER or any other course of or remedy or security available to the OWNER/PURCHASER.

The Bank shall not be released of its obligations under these presents by any exercise by the OWNER/PURCHASER of its liability with reference to the matters aforesaid or any of them or by reason or any other acts of omission or commission on the part of the OWNER/PURCHASER or any other indulgence shown by the OWNER/PURCHASER or by any other matter or things.

The Bank also agree that the OWNER/PUCHASER at its option shall be entitled to enforce this Guarantee against the Bank as a Principal Debtor, in the first instance without proceeding against the SELLER and not withstanding any security or other guarantee that the OWNER/PURCHASER may have in relation to the SELLER's liabilities.

Notwithstanding anything contained herein above our liability under this Guarantee is restricted to Rs. _____ (Rupees _____) and it shall remain in force up to and including _____ and shall be extended from time to time for such period as may be desired by the SELLER on whose behalf this guarantee has been given.

Dated at _____ on this _____ day of _____ 2024.

Signed and delivered by

For & on Behalf of

Name of the Bank & Branch &
Its official Address

List of approved Banks

All Nationalized Bank including the public sector bank or banks (operating in India having branch at Ahmedabad/ Gandhinagar) as per the G.R. no. FD/MSM/e-file/4/2023/0057/DMO dated 21.04.2023 issued by Finance Department or further instruction issued by Finance department time to time

CONTRACT FORM

THIS AGREEMENT made on the _____ day of _____, 2024 ____ Between _____ (Name of purchaser) of _____ (Country of Purchaser) hereinafter “the Purchaser” of the one part and _____ (Name of Supplier) of _____ (City and Country of Supplier) hereinafter called “the Supplier” of the other part :

WHEREAS the Purchaser is desirous that certain Goods and ancillary services viz., _____ (Brief Description of Goods and Services) and has accepted a bid by the Supplier for the supply of those goods and services in the sum of _____ (Contract Price in Words and Figures) hereinafter called “the Contract Price in Words and Figures” hereinafter called “the Contract Price.”

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

- 1 In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
- 2 The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - 2.1 the Bid Form and the Price Schedule submitted by the Bidder;
 - 2.2 terms and conditions of the bid
 - 2.3 the Purchaser’s Notification of Award
- 3 In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
- 4 The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
- 5 Particulars of the goods and services which shall be supplied / provided by the Supplier are as enlisted in the enclosed annexure:

TOTAL VALUE:

DELIVERY SCHEDULE:

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, Sealed and Delivered by the

Said _____ (For the Purchaser)

in the presence of _____

Signed, Sealed and Delivered by the

said _____ (For the Supplier)

in the presence of _____

To,
DGM (Technical),
Gujarat Informatics Ltd,
Block No. 2, 2nd Floor, C & D Wing, Karmayogi Bhavan
Sector - 10 A, Gandhinagar – 382010.

Ref: Bid Number: XXXX

Subject: MAF Authorization.

Dear Sir,

We, M/s. _____ (Name of the OEM) who are established and reputed manufacturers of do hereby authorize M/s. _____ (Name of the Bidder) to submit a bid, and sign the contract with you against above mentioned tender No: _____.

We authorized the M/s. _____ for the following modules/products:

Sr. No.	Item Description	Make	Model	UOM
1				

We hereby extend our full warranty in accordance with warranty clauses mentioned in the RFP and will provide support during contract period as per the requirement, with respect to the products offered by the above firm in reply to this Invitation for Bids.

M/s. _____ (OEM) certify that, the equipment's being sold would not be declared End of Support (EoS) in the next 5 Years and that M/s. _____ (OEM) shall supply suitable substitute in case EoS of equipment's.

Thanking you,

(Signature)

Authorized Signatory of **M/s <<Name of Company>>**

On letterhead of Bidder

Sub: Undertaking as per Office Memorandum No.: F. No.6/18/2019-PPD dated 23.07.2020 published by Ministry of Finance, Dept. of Expenditure, Public Procurement division

Ref: Bid Number: _____

I have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India. I certify that we as a bidder and quoted product from following OEMs are not from such a country or, if from such a country, these quoted products OEM has been registered with competent authority. I hereby certify that these quoted product & its OEM fulfils all requirements in this regard and is eligible to be considered for procurement for Bid number _____.

No.	Item Category	Quoted Make & Model

In case I'm supplying material from a country which shares a land border with India, I will provide evidence for valid registration by the competent authority, otherwise GIL/End user Dept. reserves the right to take legal action on us.

(Signature)

Authorized Signatory of **M/s <<Name of Company>>**

On letterhead of OEM

Sub: Undertaking as per Office Memorandum No.: F. No.6/18/2019-PPD dated 23.07.2020 published by Ministry of Finance, Dept. of Expenditure, Public Procurement division

Ref: Bid Number: _____

I have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India. I certify that we as a bidder and quoted product from following OEMs are not from such a country or, if from such a country, these quoted products OEM has been registered with competent authority. I hereby certify that these quoted product & its OEM fulfils all requirements in this regard and is eligible to be considered for procurement for Bid number _____.

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(Signature)

Authorized Signatory of **M/s <<Name of Company>>**